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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

EDITED BY

PROF. G. E. MOORE.

WITH THE CO-OPERATION OF F. C. BARTLETT, M.A., AND C. D. BROAD, Litt.D.

CONTENTS.

	PAGE
I.—Le Développement Intellectuel chez les Jeunes Enfants : JEAN PIAGET	137
II.—An Examination of Bosanquet's Doctrine of Self-transcendence (I.): RALPH E. STEDMAN	161
III.—The Relations of Mental and Physical Processes: A. D. RITCHIE	171
IV.—Logical Constructions (I.): JOHN WISDOM	188
V.—Discussion :— Is Perception Direct, or Representative?: C. A. STRONG	217
VI.—Critical Notices :— A. O. Lovejoy: <i>The Revolt Against Dualism</i> : R. I. AARON	221
G. F. Stout: <i>Studies in Philosophy and Psychology</i> : C. D. BROAD	230
C. A. Strong: <i>Essays on the Natural Origin of the Mind</i> : A. C. EWING	235
Bertrand Russell: <i>The Conquest of Happiness</i> : F. C. S. SCHILLER	238
VII.—New Books	242
VIII.—Philosophical Periodicals	260
IX.—Notes	268
Mind Association: Annual Meeting and Joint Session with Aristotelian Society	272

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY

I.—LE DÉVELOPPEMENT INTELLECTUEL CHEZ LES JEUNES ENFANTS.

Étude Critique.

Par JEAN PIAGET.

Le beau livre,¹ que Mrs. Isaacs vient de consacrer à l'évolution de l'intelligence durant la petite enfance, avec un appendice de N. Isaacs sur les « pourquoi » enfantins, soulève une série de questions de première importance pour la psychologie génétique. Cela est dû non seulement à l'intérêt du sujet traité, mais encore et surtout au très remarquable talent avec lequel Mrs. Isaacs et ses collaborateurs ont su recueillir des faits d'une grande nouveauté et les interpréter selon des conceptions systématiques et personnelles.

Pour le dire tout de suite, le système d'interprétation adopté par Mrs. et Mr. Isaacs diffère passablement du mien et une partie du volume est précisément consacrée à la discussion et à la critique de mes propres résultats. Aussi n'ai-je pas cru devoir me dérober à l'aimable invitation de Prof. Moore de répondre à l'auteur dans le MIND, et cela aussi bien pour exprimer à Mrs. Isaacs ma sincère admiration pour son œuvre que pour préciser

¹ *Intellectual Growth in Young Children.* By S. Isaacs, London: G. Routledge & Sons Ltd., 1930. Pp. xi + 370. 12s. 6d.

les termes d'un débat certainement utile à la psychologie de l'enfant.

I.

L'ouvrage de Mrs. Isaacs poursuit un double but, psychologique et pédagogique. Il s'agit à la fois de montrer ce qu'est l'intelligence enfantine et ce qu'elle peut fournir lors qu'elle est convenablement éduquée. Mais ces deux objets n'en constituent en réalité qu'un seul, étant donné que toutes les observations de Mrs. Isaacs ont été prises dans une école organisée elle-même de telle sorte que les enfants pussent se développer avec le maximum de spontanéité. L'observation psychologique n'a ainsi fait qu'un avec l'expérimentation pédagogique.

La méthode suivie par Mrs. Isaacs est celle de l'observation pure. Les faits contenus dans le volume consistent donc en relevés de propos spontanés d'enfants ou en descriptions de l'activité également spontanée des élèves, avec le minimum d'interprétation ou d'intervention adultes. Mais il faut bien comprendre que ce ne sont pas là des mots et que la liberté des enfants a été totale, une fois ceux-ci mis en présence du matériel préparé à leur usage. Par exemple, au point de vue moral, aucune contrainte n'a été exercée sur les enfants ni même aucun précepte tiré de la morale adulte ne semble avoir été suggéré. Quant au point de vue intellectuel, la longue description qui nous est donnée de la technique éducative de l'école et des conditions de l'observation (chap. II.) est bien nécessaire pour nous permettre de comprendre la nature tout à fait exceptionnelle des résultats obtenus par l'auteur et ses collaborateurs.

L'école de la Malting House, ouverte à Cambridge en octobre 1924, a fonctionné jusqu'en 1928 et les élèves, d'abord au nombre de dix (de 2 ; 8 à 4 ; 10), se sont trouvés une vingtaine (de 3 à 8-10 ans.) à la fin des observations. Pour qui visitait cette école, comme nous avons eu le plaisir de le faire nous-même, son caractère le plus frappant était d'être un véritable laboratoire mis à disposition des enfants. A côté de jeux éducatifs tels que ceux de Mme. Montessori ou de la Maison des Petits de Genève, les enfants étaient en possession, non seulement de toute une ménagerie (lapins, cobayes, poules, salamandres, etc.) mais encore d'instruments très variés et d'ateliers véritables. Les becs Bunsen y constituaient par exemple un instrument courant, manié par les petits aussi bien que par les grands, et l'usage de feu n'avait plus de secrets pour ces apprentis-chimistes. Le travail du bois, de l'argile, tout un jeu de tubes et de flacons, des instruments de dissections et un squelette, une horloge, et

des mécaniques diverses, tout était à disposition des élèves, selon leur niveau et leur âge.

Il va de soi que dans ces conditions, l'enfant se livrait à une recherche d'autant plus active que tout le personnel de l'école était acquis à l'idéal commun : permettre à l'élève de s'adapter de lui-même et aussi vite que possible à la réalité. Les réflexions de Mrs. Isaacs sur les conditions négatives et sur les stimuli positifs propres à favoriser cette libre activité sont à cet égard extrêmement instructives.

Passons maintenant aux résultats. Deux très importants chapitres intitulés « Découverte, raisonnement et pensée », l'un consacré à l'analyse théorique des problèmes (chap. III.), l'autre à l'exposé des observations (chap. IV.), nous donnent l'essentiel de la position de Mrs. Isaacs.

Cette position tient tout entière, peut-on dire, dans une certaine manière d'aborder le problème de la connaissance, ou, en termes psychologiques, le problème des rapports entre la « maturation » et l'expérience. Soit un enfant d'un certain âge, ou un être pensant d'un certain niveau mental, mis en présence d'un groupe de phénomènes physiques. Deux choses sont à considérer ici : 1° ce que l'esprit du sujet acquiert au contact de ces phénomènes, autrement dit l'« expérience » ; et 2° l'activité propre à l'esprit et ne s'expliquant pas par l'expérience elle-même. Ce second élément définit la « maturation ». Mais, s'empresse d'ajouter Mrs. Isaacs, la maturation n'est qu'un « concept-limite » (p. 57) et il ne faut attribuer à ce facteur que ce qui, décidément, « ne peut pas être démontré comme étant fonction de l'expérience » (p. 57). Il ne saurait donc être question de décrire les faits propres à la maturation en termes de « structures » ou de « catégories », ni de chercher dans les structures des successions caractérisant des « stades » d'âge. L'imprudence de Piaget a précisément été de croire à ces structures et de n'être pas assez critique dans sa conception de la maturation. Pour le réfuter, il suffira donc de montrer l'existence de certaines formes de pensée à des âges où il les croit impossibles : la preuve « positive » l'emportera dès lors sur la preuve « négative ».

Pour tout esprit non prévenu, nous dit Mrs. Isaacs, l'enfant pense, en effet, exactement comme nous et son intérêt pour les phénomènes physiques est aussi vivant et aussi fructueux. Il est donc clair que l'expérience pure est le vrai moteur du développement intellectuel. Il n'y a donc pas, dans la « maturation » psychologique, à chercher de comparaison avec le développement embryologique : ce n'est pas une loi organique qui règle la

succession des étapes, mais tout simplement le contact avec les faits.

Que reste-t-il donc à l'actif de la « maturation » ? Il reste cependant que les réponses successives de l'esprit aux différentes questions que lui pose la réalité apparaissent dans un ordre donné, ainsi qu'il est prouvé par la pratique des tests mentaux. Seulement, un tel déroulement ne justifie nullement l'idée désuète d'une « récapitulation ». La théorie « stratigraphique » de l'esprit, liée à cette notion pseudo-biologique des stades héréditaires, a reçu le coup de grâce de l'analyse de l'intelligence de Spearman : l'intelligence est une, à quelque niveau que ce soit de son développement. L'acte essentiel de la connaissance est l'intuition ou l'« éduction » des relations ou des « corrélats », par appréhension directe de l'expérience. Qu'il s'agisse de perception ou de raisonnement, de déduction mathématique ou de création esthétique, tout rentre dans cette formule. Que l'enfant élabore des connaissances nouvelles ou applique des connaissances à des situations nouvelles, le processus est toujours le même. La maturation mentale se manifeste ainsi par une hiérarchie progressive des synthèses de l'expérience, dans le sens de l'abstraction et de la cohérence complémentaires, et dans la direction des intérêts dominants. Mais rien dans cette hiérarchie ni dans ces synthèses ne nous contraint à concevoir cette maturation comme autre chose qu'un concept-limite.

Ici apparaît le désaccord avec nos vues particulières, sur lesquelles Mrs. Isaacs veut bien s'étendre au cours d'une discussion serrée et extrêmement instructive. Piaget nous décrit un certain nombre de stades, dit Mrs. Isaacs, caractérisés chacun par de soi-disant « structures », mais il ne nous explique nullement la succession de ces stades. A cet égard, son œuvre se réduit à une « histoire naturelle pure et simple » et, ce qui est pire, à une histoire mêlée de logicisme ! (p. 78). Il cherche bien dans le facteur social le clef du développement intellectuel, mais le développement social demanderait à être expliqué lui-même, car, loin d'être déterminé par une maturation interne du système nerveux, il s'explique aisément par l'histoire des individus, et en particulier par les facteurs strictement psychologiques mis en lumière par Freud (Mrs. Isaacs prépare un second volume sur ce point spécial). Certes le fait social a une influence sur l'enfant, comme le montre précisément la psycho-analyse, mais on peut maintenir que dès l'âge le plus bas l'enfant prend directement contact avec le monde physique : celui-ci répond par *oui* ou par *non* aux désirs du sujet ! D'autre part, dans l'école de la Malting House, les enfants ont fait preuve d'intérêt pour les phénomènes

physiques bien avant les âges indiqués dans nos travaux. La formulation même s'est trouvée excellente : par exemple Dan à 5;9 (quotient intellectuel de 142) a su expliquer le mécanisme des bicyclettes, etc. Le milieu ambiant et surtout l'intérêt pour le matériel accélèrent ou retardent la succession des stades. Les raisonnements logiques s'observent dès 3-4 ans, de même que les discussions, et si le monologue et l'égoïsme s'observent dans certaines situations spéciales, telles que le jeu, on ne saurait en faire des caractères généraux de la pensée de l'enfant. Un fait sur lequel insiste en particulier Mrs. Isaacs (pp. 88-91), c'est que différents types d'explications peuvent surgir aux mêmes âges : ainsi Dan à 5 ans, tout en étant capable d'expliquer les bicyclettes, présente des exemples de « précausalité » magique. Il ne saurait donc être question de structures successives (pp. 92-3), mais les phénomènes de syncrétisme ou d'égoïsme réapparaissent partout où le sentiment entre en jeu, où le contrôle est impossible, etc., et cela chez l'adulte lui-même.

Enfin vient une critique intéressante de notre méthode « clinique ». Trois objections nous sont adressées. En premier lieu l'interrogatoire porte trop souvent sur des questions supposant une information scientifique ou simplement scolaire. En second lieu la question est toujours suggestive, en dépit des précautions prises. En troisième lieu et surtout, l'interrogatoire implique une situation stéréotypée, qui est artificielle et tourne ainsi nécessairement au désavantage de l'enfant. Au contraire, le contact avec les faits eux-mêmes et la coopération entre enfants permettent une évaluation plus objective de la pensée enfantine. Enfin notons cette remarque de Mrs. Isaacs que les enfants sur lesquels ont porté ses recherches présentent un quotient intellectuel élevé, de 131 de moyenne. Les nôtres, dit-elle, sont de niveau mental mélangé, sans qu'aucune indication précise permette de juger chaque individu particulier.

La fin de cet important chapitre III. est consacré aux rapports entre la pensée et l'imagination ludique. Mrs. Isaacs nous rappelle les nombreuses dérivations dont le jeu est l'instrument et également le rôle de l'imagination dans la formation des hypothèses, des croyances et de ce qu'on peut appeler la connaissance « dramatisée ». Mais, ajoute l'auteur, la pensée et l'imagination ludique ne sont pas confondues par l'enfant : si le petit enfant est égoïste, c'est là affaire de sentiment et de fantaisie, nullement de pensée.

Le chapitre IV. est un exposé des matériaux sur lesquels reposent les considérations précédentes. Nous y trouvons une collection précieuse d'observations très bien prises portant sur

l'application des connaissances acquises, sur l'acquisition même du savoir (problèmes et expériences, observations et découvertes) et sur l'échange social des connaissances (raisonnements formulés, discussions, contrôle mutuel et auto-correction). Il est impossible de résumer ce recueil, où chaque psychologue devra puiser à l'avenir quelque information. Nous y reviendrons d'ailleurs au cours de notre examen critique.

Les chapitres V. et VI. sont consacrés aux intérêts biologiques de l'enfant. Mrs. Isaacs estime avec beaucoup de raison que l'adulte méconnaît en général la vraie nature de ces intérêts, soit qu'il prête à l'enfant un romantisme sentimental qui est dû en réalité à la littérature pseudo-enfantine, soit qu'il cherche à voiler la curiosité très réelle de l'enfant pour le problème de la reproduction et de la sexualité. Les pages vigoureuses de Mrs. Isaacs sur ce point, ainsi que les observations toujours très précises qu'elle nous apporte à l'appui de ses opinions sont de nature à faire tomber bien des préjugés.

Enfin les chapitres VII. et VIII. viennent compléter ce tableau du développement intellectuel des écoliers de la Malting House, le premier en nous décrivant quatre échantillons de semaines scolaires, le second en nous donnant un sommaire des activités principales auxquelles se livraient les écoliers. L'utilité du premier de ces chapitres est de nous confirmer ce que nous savions par les essais bien conduits d'éducation « active » chez les petits : la continuité des intérêts au cours de la recherche en commun. Quant au second, il sera également d'un grand secours aux pédagogues, en leur montrant le champ très large qui a pu être parcouru au moyen d'une méthode fondée exclusivement sur les ressorts intimes de l'intelligence et de la recherche expérimentale propre à l'enfant.

Venons enfin à l'appendice de N. Isaacs sur les « pourquoi » enfantins. Cette étude, extrêmement subtile et pénétrante, nous paraît être d'une grande importance. L'auteur s'y place à un point de vue uniquement fonctionnel et essaye de dégager ce que cherche l'enfant lorsqu'il pose la question « pourquoi ». Or la question est la marque d'une désadaptation. En possession d'un schème ou d'une règle générale, l'enfant s'attend à une vérification indéfinie de cette règle : mais voici que l'obstacle surgit, sous la forme d'un fait inattendu, contradictoire, qui force l'esprit à revenir sur lui-même et à chercher une nouvelle route. Le « pourquoi » est l'indice de cette désadaptation et l'instrument d'une nouvelle adaptation. Aussi M. Isaacs conclut-il que du point de vue prospectif (et nous dirions fonctionnel) l'enfant qui questionne raisonne exactement comme l'adulte et le

savant. Ce n'est que d'un point de vue rétrospectif et en considérant précisément les hypothèses que l'enfant abandonne, que les « pourquoi » paraissent entachés de « précausalité ». M. Isaacs soumet à cet égard l'ensemble de nos propres matériaux à une « réinterprétation » extrêmement utile.

II.

L'examen critique des thèses de Mrs. et de Mr. Isaacs, auquel nous aimerions nous livrer maintenant, prendra nécessairement la forme d'un plaidoyer *pro domo mea*. En effet, ces auteurs, avec un sens de la collaboration des esprits et de la continuité de la recherche scientifique, auquel je me plais à rendre hommage, ont centré presque toute leur interprétation de la psychologie de l'enfant autour de mes propres thèses, soit pour les réfuter, soit pour les corriger dans ce qu'elles ont d'absolu. Critiquer mes amis Isaacs sera donc presque nécessairement me défendre moi-même ! Mais je chercherai à situer le débat au dessus de tout égocentrisme—même de l'égocentrisme infantin . . . —et à ne justifier que ce qui me paraît la vérité, par opposition à celles de mes idées qui ne sont qu'hypothèses fragiles et purement individuelles.

Deux choses sont à considérer dans l'œuvre de Mrs. Isaacs : les faits et les interprétations.

Pour ce qui est des faits, nul ne saurait songer à les contester. Ils sont parfaitement observés et du plus haut intérêt. La seule remarque qui me paraît s'imposer, si l'on veut ensuite comparer ces faits à d'autres, obtenus en des milieux différents, est que les observations prises par Mrs. Isaacs ne nous permettent par d'atteindre l'enfant « en soi », mais seulement l'enfant dans le milieu donné de la Malting House. Je sais bien que c'est précisément une critique que m'a adressée Mrs. Isaacs, que d'avoir cru trouver à Genève des enfants « en soi ». Mais je prends bonne note de la critique et conclus que toujours et partout l'enfant que l'on observe est en partie influencé par le milieu ambiant, physique et social. Or, à la Malting House, tout était organisé, ainsi que l'on a vu, en vue de stimuler et de développer l'intérêt des enfants pour l'expérimentation proprement scientifique. On a réussi en une large mesure dans cette tentative, c'est entendu, et là est le grand enseignement de l'œuvre de Mrs. Isaacs. Au point de vue pédagogique, en particulier, on ne saurait en sous-estimer l'intérêt. Seulement le psychologue est bien obligé de relever que : 1° le matériel a été préparé par des adultes ou en collaboration avec des adultes ; et que 2° l'adulte s'est trouvé

constamment présent pour encourager l'enfant et le renvoyer à l'expérience en cas de discussion. On peut se demander, en effet, ce que serait devenue l'expérience de la Malting House en l'absence de tout adulte. Il est évident que la présence seule de Mrs. Isaacs et de ses collaborateurs a suffi, je ne dis pas à créer chez l'enfant ce qui n'était pas en lui, mais à polariser l'activité des élèves, qui aurait peut-être sombré sans cela dans une anarchie relative.

Les faits décrits par Mrs. Isaacs sont donc bien des faits de psychologie enfantine spontanée, en ce sens qu'ils ne sont nullement le produit d'une suggestion directe de l'adulte. Mais ils sont relatifs à un certain milieu social et physique en ce sens que l'approbation, explicite ou tacite, des adultes présents a polarisé la recherche de l'enfant et a développé ce qui n'eût été peut-être qu'indication restreinte ou intérêt momentané.

Cela établi, il devient plus facile de comparer les résultats obtenus par Mrs. Isaacs avec ceux auxquels on aboutit dans d'autres milieux sociaux et avec d'autres techniques. Or nous avons travaillé nous mêmes dans des milieux populaires de Genève (sauf en ce qui concerne les observations sur le langage, faites à la Maison des Petits) et au moyen de conversations avec chaque enfant pris individuellement. Deux questions se posent donc ici : celle du niveau mental des élèves et celle de la méthode « clinique ».

En ce qui concerne la première, nos sujets, qui ont été fréquemment testés (bien que nous n'ayons pas attribué grande importance au quotient intellectuel de chacun), présentent une moyenne de 100 environ, c'est à dire qu'ils n'étaient en gros ni avancés ni retardés par rapport aux petits Français examinés par Binet et Simon. Or les élèves de Mrs. Isaacs étaient sélectionnés et présentaient une moyenne de 131. A cet égard il n'est que normal qu'ils se soient trouvés avancés en tout sur les nôtres. Un seul exemple fera comprendre la chose. Dan à 5 ans et 9 mois explique correctement le mécanisme d'une bicyclette, ce que Mrs. Isaacs juge contradictoire avec l'âge que nous avons assigné à la causalité mécanique (voir, p. 81). Mais on nous dit (p. 44) que Dan à 5 ; 9 avait 142 de quotient intellectuel, ce qui lui donne donc 8 ans d'âge mental. Or c'est précisément à 8 ans, d'après notre statistique portant sur un grand nombre d'enfants vus au hasard, que l'explication correcte de la bicyclette est donnée ! On voit que l'exemple choisi par Mrs. Isaacs est malheureux et tendrait plutôt à confirmer le bien fondé de nos moyennes. Mais que l'on se rassure sur ce point : nous verrons tout à l'heure pourquoi la question d'âge ne présente qu'un intérêt tout à fait secondaire.

Quant à la seconde question, elle est de savoir si notre méthode d'interrogatoire nous a permis, elle aussi, d'obtenir des renseignements objectifs sur la pensée de l'enfant, ou si elle déforme systématiquement l'enfant interrogé. Mrs. Isaacs tend à adopter la seconde opinion, bien qu'elle accorde une valeur relative à nos matériaux. Nous pouvons d'ailleurs l'assurer que nous sommes entièrement d'accord avec ses trois critiques relatives à la méthode d'interrogation, que nous nous sommes constamment adressé à nous-même ces critiques et que nous n'avons jamais considéré les résultats des interrogatoires que comme des grossissements artificiels de croyances existant seulement à l'état de tendances dans l'esprit de l'enfant. Mais ces tendances existent ! Indépendamment des problèmes d'interprétation, sur lesquels nous reviendrons dans la suite, nous pouvons affirmer dès maintenant que des enfants normaux, ou de quotient intellectuel supérieur à la moyenne, élevés dans la nature autant que faire se peut, présentent des tendances réalistes, magiques, animistes ou artificialistes à un plus haut degré que les enfants de la Malting House. Ainsi, sans jamais interroger mes filles à la manière dont j'ai interrogé les écoliers genevois, j'ai pu retrouver dans leurs réactions spontanées l'essentiel de ce que j'avais vu sur ces écoliers. Je publierai d'ailleurs ces faits, qui me paraissent constituer la meilleure contre-épreuve de mes résultats antérieurs. On y verra en particulier comment les intérêts « biologiques » (le problème de la naissance élucidé spontanément par l'observation des animaux) ont provoqué toute une recherche sur l'origine des choses et un ensemble de solutions animistes et artificialistes.

Or, si nous sommes d'accord avec Mrs. Isaacs sur les dangers de la méthode d'interrogatoire lorsqu'on l'applique à elle-seule, nous croyons par contre que le fait d'avoir interrogé beaucoup d'enfants transforme ensuite l'observation de certains cas privilégiés. Nous voulons dire par là que beaucoup de réactions spontanées ne présentent guère de signification pour celui qui n'a pas l'habitude de l'interrogatoire alors qu'ils en acquièrent par comparaison avec les résultats de l'interrogation. Par exemple, nous n'aurions rien compris nous-mêmes à plusieurs propos de nos filles sur l'air ou la nuit, etc., sans avoir été averti auparavant par l'interrogation d'autres enfants. En ce qui concerne la Malting House, nous trouvons dans les relevés de Mrs. Isaacs, plusieurs exemples de « précausalité » (p. 89). Des tendances analogues à ceux de nos enfants existaient donc aussi chez ceux-là. Comment donc mesurer l'intensité de ces tendances si, par principe, on n'interroge jamais ? L'observation pure est-elle suffisante pour les déceler ? Il faudra, je pense, encore bien des

recherches en toutes sortes de milieux physiques ou sociaux, pour arriver à trancher ce débat.

En bref, nous croyons que les faits observés par Mrs. Isaacs ont une grande valeur mais qu'ils ne suffisent pas à dénier toute valeur aux faits différents que l'on peut recueillir en d'autres milieux et que nous avons en particulier décrits chez les écoliers genevois. Il s'agit donc simplement de trouver comment ces faits hétérogènes sont conciliables et ceci nous conduit aux problèmes plus graves de l'interprétation.

III.

Mrs. et Mr. Isaacs me font l'honneur d'une discussion d'ensemble de mon interprétation de la mentalité enfantine. Avant de répondre sur ce point, j'aimerais faire deux remarques. La première est que je n'ai nullement terminé mon enquête sur le développement de la raison chez l'enfant et que, dans ma perspective actuelle, mes premiers volumes ne constituent que des introductions ou des travaux d'approche, insistant sur certains caractères extérieurs de ce développement et non sur les lois mêmes de la « maturation ». Aussi n'ai-je nulle envie de défendre le passé et de laisser mes hypothèses de travail primitives se cristalliser en opinions dogmatiques. J'aimerais donc répondre en fonction du présent et du futur sans trop m'encombrer, en particulier, de notions qui se sont révélées à la discussion par trop équivoques, comme celle de la « mentalité » enfantine.

En second lieu, j'aimerais rappeler que j'ai écrit mes premiers livres pour des lecteurs de langue française sans prévoir la possibilité de traductions. Aussi n'ai je pas insisté sur ce qui est familier à la psychologie française, alors que j'aurais parlé tout autrement à des milieux anglais. Ce détail prend une grande importance en ce qui concerne le facteur social. L'école de sociologie de Durkheim a frayé dans ce domaine un chemin entièrement nouveau, bien que les résultats de Durkheim sur les sociétés primitives soient évidemment très discutables. Or ne peuvent s'en douter que les lecteurs attentifs des travaux de l'*Année sociologique*. A voir comment, en France même, l'œuvre de Durkheim a donné lieu à malentendus et à discussions en partie stériles, on comprend facilement comment les allusions à la sociologie durkheimienne peuvent rester dépourvues de toute signification dans des milieux non habitués à ce point de vue. Aussi ne puis-je guère m'étonner de la méprise de Mrs. Isaacs en ce qui concerne le facteur social (p. 78). Nous y reviendrons tout à l'heure.

Cela dit, cherchons à examiner en toute objectivité l'interprétation de la psychologie infantine que nous propose Mrs. et Mr. Isaacs. Pour le dire en un mot, nous croyons cette interprétation trop simple, c'est à dire qu'elle n'est nullement erronée dans ce qu'elle affirme, mais que, dans ce qu'elle nie, elle témoigne, à notre sens, d'une notion insuffisante de la raison.

En effet, l'idée centrale, nous semble-t-il, de cette interprétation est que l'esprit progresse par contact avec la réalité physique, autrement dit, grâce à l'expérience. Le développement mental de l'enfant n'est donc pas autre chose qu'une synthèse graduelle de l'expérience. Or cela est absolument exact et nous ne saurions que souscrire entièrement à une telle thèse, tant au point de vue de la psychologie de l'intelligence qu'au point de vue de la technique pédagogique. Seulement, toute la question est de savoir comment l'« expérience » est psychologiquement possible. La différence entre Mrs. Isaacs et moi n'est donc pas, comme elle semble le dire, que je néglige le rôle de l'expérience dans le développement de l'enfant (ce rôle est si évident que je n'ai pas cru devoir y insister spécialement) : le désaccord vient de ce que je crois l'« expérience » beaucoup plus compliquée qu'elle ne veut bien l'admettre.

Il y a en effet, deux choses bien distinctes à considérer dans ce qu'on appelle communément l'expérience. En premier lieu, il y a ce que nous désignerons sous le nom d'expérience immédiate, c'est à dire le contact direct et non critiqué avec les faits. Par exemple la lune nous suit dans notre marche ; un caillou léger tombe au fond de l'eau tandis qu'un tronc très lourd flotte à la surface, etc. En second lieu, il y a ce que nous appellerons l'expérience scientifique, c'est à dire l'acte par lequel la raison interroge les faits lorsqu'elle a mis ces faits en relations suffisamment précises les uns avec les autres pour qu'ils répondent par *oui* ou par *non*. Par exemple est-ce le volume d'un caillou ou son poids qui explique l'élévation du niveau de l'eau lorsqu'on plonge un caillou dans un verre ? Est-ce leur poids absolu qui explique la flottaison des corps ? Etc.

Or toute la question est de déterminer les rapports entre l'expérience immédiate et l'expérience scientifique. Pour une certaine psychologie les deux formes de l'expérience sont identiques, et l'on peut même dire qu'il y a moins dans l'expérience scientifique que dans l'expérience immédiate puisque la première « simplifie » la seconde. Pour d'autres, au contraire, il y a plus dans l'expérience scientifique que dans l'expérience immédiate puisqu'il y a en plus le travail de la raison qui a organisé une réalité primitivement chaotique.

Pour nous, cette seconde thèse est incontestablement vraie. Sans vouloir invoquer encore la psychologie de l'enfant, qui est précisément en cause ici, nous pouvons nous référer à l'histoire des sciences tout entière. Lorsque l'on constate combien la science expérimentale est récente, combien la technique empirique des sociétés préscientifiques et la réflexion pourtant rationnelle des Grecs sont éloignées de l'expérience véritable, on ne peut que rester sceptique devant l'affirmation suivant laquelle l'esprit humain posséderait le pouvoir d'entrer directement et sans une longue éducation en contact avec les faits eux-mêmes. Le fait scientifique est plus riche que le fait brut.

Or, autant que nous les comprenons, Mrs. et Mr. Isaacs négligent cette critique de l'expérience. C'est l'« effet cumulatif » de l'expérience qui est pour eux le moteur principal du développement mental. La maturation n'est, selon eux, qu'un concept-limite, alors que l'on pourrait en dire tout autant, et avec d'aussi bons arguments, de l'expérience elle-même ! Pour eux, la doctrine de Spearman suivant laquelle l'intelligence progresse par intuitions et éductions de relations et de corrélats semble s'interpréter comme si les relations et les corrélats étaient tout préparés dans les données de la réalité physique et comme si l'expérience immédiate et l'expérience scientifique se bornaient à les constater ou à les formuler. Pour nous, au contraire, si l'on veut s'abstenir de métaphysique empiriste, comme de toute métaphysique, il faut dire simplement que la perception ou l'intelligence construisent les relations et les corrélats, ou, ce qui revient au même, prennent conscience des relations qui existent entre l'esprit (ou l'organisme) et le milieu physique.

En bref, le problème est de savoir ce que rencontre l'esprit dans son « appréhension immédiate de l'expérience » : est-ce une réalité toute organisée de l'extérieur et qu'il s'agira simplement de découvrir, comme on découvre un pays étranger, ou est-ce une réalité organisée dans la mesure seulement où elle est perçue ou conçue en relation avec l'esprit lui-même et qu'il s'agira d'organiser toujours davantage ? Mrs. Isaacs pense de la première façon, moi-même de la seconde : l'essentiel de notre divergence est là !

Je sais bien que, dans son appendice, M. Isaacs nous donne de l'« expérience » une image plus subtile. L'important pour lui, c'est l'« attente » de l'individu, le schème habituel qui est braqué sur les faits et qui sera confirmé ou contredit par les événements. En outre, l'auteur admet que, en cas de contradiction, le sujet retourne sur lui-même pour modifier sa méthode. Mais alors, si l'on admet cela, on doit faire une part à l'activité

de l'esprit dans la connaissance, et l'expérience cesse d'être absolument pure. L'expérience est en partie organisée par le sujet, et la connaissance consiste en partie en une prise de conscience de cette organisation, c'est à dire de la méthode suivie. Ce que nous appelons « structure » n'est pas autre chose : c'est une forme d'organisation de l'expérience, et une forme sans cesse sujette à révisions sous l'influence des succès ou des échecs dus à la réalité. Nous croyons donc que, tout en rejetant le mot de « structure », Mrs. et Mr. Isaacs admettent, en fait, la chose (du moins Mr. Isaacs), et que notre langage diffère plus que nos conceptions elles-mêmes !

Ceci nous conduit à un second point fondamental, qui est celui de la « maturation ». Mrs. Isaacs nous dit que cette notion doit être traitée comme un concept limite, et elle a bien raison. C'est pourquoi nous nous sommes toujours abstenu nous-même de parler de structures ou de catégories *statiques* et n'avons envisagé que le dynamisme de la raison en action. Mais Mrs. et Mr. Isaacs désireraient davantage ; que l'on supprimât toute structure intellectuelle, pour ne voir en la raison qu'une activité purement « éductive ». Or c'est ce que nous ne pouvons admettre. Nous voulons bien reconnaître que la maturation, autrement dit le dynamisme de la raison, est un concept-limite, mais nous croyons que l'expérience, c'est à dire le contact avec le donné, l'est aussi, puisque ce contact ne saurait être pur ! Autrement dit, ce qui est réel et positif, ce n'est ni la maturation ni l'expérience, c'est la relation entre ces deux termes limites : il n'y a pas de maturation ni de raison sans expérience, mais inversement il n'y a pas d'expérience sans une assimilation à la raison. Pour mieux dire, il n'y a pas de structure sans contenu, mais il n'y a pas de contenus sans structure.

Si nous partons de la biologie, dont Mrs. Isaacs a fait elle-même un si heureux usage dans son *Introduction to Psychology*, nous constatons, en effet, que si l'organisme ne peut vivre sans le milieu, inversement toute action du milieu est toujours relative à l'activité ou à la structure de l'organisme : la même cause extérieure produira des effets tout différents sur deux organismes ou sur deux états distincts et successifs du même organisme. C'est ce qu'on appelle *l'assimilation*. Or toute perception, toute conception, toute adaptation même sensorimotrice suppose une telle intervention de l'assimilation. Nier toute structure c'est donc parler comme si l'esprit était une plaque photographique au lieu d'être partie intégrante d'un organisme vivant. Or c'est évidemment ce que Mrs. et Mr. Isaacs ne disent pas !

Mais ici surgit un troisième problème, qui devient beaucoup

plus précis : n'existe-t-il qu'une seule structure intellectuelle ou pouvons-nous distinguer, au moyen de coupures plus ou moins arbitraires, des structures successives ? C'est sur ce point que je reconnais volontiers avoir été imprudent ou trop simple, et que de nouvelles recherches sur le développement de la raison infantine me paraissent nécessaires. En attendant la solution de ce problème, solution à laquelle les belles observations de Mrs. Isaacs contribueront grandement, j'aimerais présenter quelques remarques au sujet de la solution actuelle de nos auteurs parce que cette solution me paraît elle aussi trop simple.

Pour Mrs. et Mr. Isaacs, en effet, l'intelligence humaine est constamment identique à elle-même, qu'il s'agisse de perceptions, d'expériences élémentaires, aussi bien que de raisonnements scientifiques. La doctrine de Spearman est à nouveau invoquée ici en faveur de l'hypothèse de cette unité foncière de la raison. Or une telle affirmation nous paraît comporter une très grande part de vérité si l'on se place au point de vue de la *fonction*, et ce n'est qu'au point de vue de la *structure* que nous ne saurions nous y rallier complètement. Il est parfaitement vrai, en effet, que la raison est une : les grandes fonctions de la raison, telles que précisément la mise en relations dont nous parle Spearman, la recherche de l'unité ou de la cohérence, l'effort de généralisation et d'explication, etc., sont absolument constantes, et de ce point de vue, nous retrouverons le même fonctionnement chez l'enfant, le primitif, dans la pensée autistique, la pensée commune ou la pensée scientifique. Aussi suis-je tout à fait d'accord avec la réinterprétation « fonctionnelle » des « pourquoi » de Mr. Isaacs. Seulement, il faut distinguer la fonction et la structure ; et si nous avons eu le tort de ne pas insister sur ce point au début de nos recherches, son importance s'impose à nous toujours davantage.

Du point de vue biologique, par exemple, il est évident que certaines fonctions, telles que l'assimilation, la reproduction, etc., sont absolument générales et communes à tous les êtres. De ce point de vue, la vie est une et nous retrouverons chez tous les vivants son unité fonctionnelle. Mais lors qu'on passe de là à la structure, les choses changent complètement : certains animaux se nourrissent par osmose, d'autres ont un tube digestif différencié, les uns ont un ou plusieurs estomacs, les autres n'en ont pas, etc. Or nous pouvons appliquer exactement les mêmes remarques à un développement psychologique tel que celui de l'intelligence. Prenons comme exemple une loi d'équilibre des croyances et des jugements, telle que le principe de contradiction. Nous constatons d'une part qu'à tous les degrés de l'évolution mentale l'esprit recherche une certaine cohérence (cohérence entre les

actions, les sentiments, les croyances élémentaires, les jugements et raisonnements, etc.): à titre de fonction d'unification, le principe de contradiction est donc présent partout et fait ainsi partie des invariants fonctionnels de toute intelligence. Mais, d'autre part, ce qui paraît contradictoire aux uns ne l'est pas aux autres; le primitif et l'enfant évaluent la cohérence tout autrement que nous, le mathématicien tout autrement que l'homme dans la rue, etc. Ces différences viennent-elles donc simplement de l'expérience, comme semblent le penser Mrs. et Mr. Isaacs? Cela ne se peut pas, car l'expérience ne nous apprend jamais ce qui est contradictoire et ce qui ne l'est pas: l'expérience nous montre simplement ce qui est réel et ce qui est physiquement impossible. La contradiction ou la non-contradiction n'apparaissent que lorsque nous interprétons l'expérience et en particulier lorsque nous la classons. Les variations dans l'évaluation de la cohérence indiquent donc des variations de structure dans notre manière d'interpréter ou de déduire l'expérience, et ces variations sont parfaitement compatibles avec une invariance fonctionnelle.

Bref, entre la fonction qui est stable et le contenu de l'expérience qui varie, il est nécessaire de concevoir l'existence de structures, qui constituent les organes mêmes de l'assimilation intellectuelle, et il est nécessaire d'accorder une certaine plasticité à ces structures si l'on veut tenir compte de l'évolution mentale. Le tort de Mrs. et Mr. Isaacs, de notre point de vue, est donc non pas de postuler l'unité fonctionnelle de la raison (nous sommes d'accord avec eux sur ce point), ni d'admettre l'importance du contenu de l'expérience pour expliquer l'évolution intellectuelle (nous sommes toujours d'accord), mais de croire qu'entre la fonction invariable et le contenu variable il n'y a rien: il y a entre eux toute l'activité créatrice de la raison!

Comment donc expliquer les rapports qui existent entre la fonction, la structure et l'expérience elle-même? C'est sur ce point capital que l'interprétation des auteurs me paraît glisser un peu trop simplement sur les problèmes fondamentaux que soulève le développement de la raison humaine. Pour notre part, si nous admettons une certaine plasticité dans la structure elle-même, c'est en vertu de trois circonstances dont les deux dernières n'ont pas suffisamment préoccupé nos contradicteurs.

En premier lieu, la structure n'est jamais complètement indépendante du contenu de l'expérience. Comme nous l'avons vu, il n'y a pas de contenu sans forme, mais inversement il n'y a pas de forme sans contenu. C'est donc la relation intime et indissociable entre la maturation et l'expérience qui est le fait premier, et non l'expérience comme telle ou la structure conçue

comme une pure forme. Dès lors il est évident que la structure variera en fonction de l'expérience. Ainsi la causalité selon Einstein n'est pas la causalité selon Newton ou la causalité selon Thalès, en partie parce que les phénomènes que Einstein avait pour tâche d'interpréter étaient différents de ceux auxquels se limitaient ses prédécesseurs.

En second lieu, et ceci est capital, les relations entre la structure et la fonction sont loin d'être simples. La structure, peut-on dire, est une prise de conscience ou une « réflexion » toujours approximative de la fonction elle-même. En effet, l'intelligence commence par être entièrement inconsciente de son propre fonctionnement : elle est tournée vers les choses, et les relations qu'elle construit lui paraissent faire partie de l'expérience elle-même. A ce niveau, qui est celui de la perception simple, fonction, structure et contenu ne font qu'un pour la conscience. Mais au fur et à mesure des difficultés que rencontre l'esprit dans son interprétation de l'expérience il est obligé de substituer le jugement à l'intuition perceptive, le raisonnement discursif et hypothético-déductif aux simples jugements concrets, etc. L'esprit prend ainsi conscience de lui-même et les notions qu'il élabore traduisent une réflexion toujours plus poussée sur son propre fonctionnement. L'évolution des mathématiques est un admirable exemple de ces structures que la raison crée au fur et à mesure qu'elle prend conscience de son activité et sans arriver jamais à « axiomatiser » vraiment, d'une manière adéquate, ce fonctionnement intime. De même chez l'enfant, les formes successives de la causalité ne sont pas seulement des accommodations à l'expérience : elles sont aussi des essais progressifs de réflexion sur la causalité elle-même en tant qu'activité fonctionnelle de la raison. On voit donc que si le noyau fonctionnel de l'intelligence demeure identique en tant que fonctionnel, la réflexion de l'intelligence sur elle-même suffit à en transformer sans cesse la structure. Il faut bien comprendre en effet, que la réflexion ou la prise de conscience n'est pas seulement un phénomène d'éclairage pour ainsi dire : réfléchir, c'est traduire l'action en notions, c'est donc reconstruire et par cela même transformer.

Enfin, et en troisième lieu, l'évolution de la raison est une « épuration » continue. Aux débuts de son activité, la raison est en effet, chargée de deux sortes d'impuretés. D'une part elle est victime de « phénoménisme », c'est à dire de l'expérience naïve telle qu'elle apparaît avant d'être corrigée par le travail de la déduction. D'autre part, et cela revient au même, elle est victime de l'égoïsme, c'est à dire d'une illusion de perspective qui fait que nous ne distinguons pas d'emblée le subjectif et l'objectif.

Sans vouloir encore parler de l'enfant il nous paraît évident que des conceptions telles que la magie, l'animisme ou même la notion de « force » telle qu'elle se manifeste chez Aristote, sont un produit combiné de ce phénoménisme et ce subjectivisme initiaux. L'évolution structurale de la raison consiste, à ce troisième point de vue, en une « épuration » simultanée du phénoménisme et de l'égocentrisme. Or l'histoire des sciences nous montre, et ceci me paraît capital pour interpréter correctement la psychologie de l'enfant, que ce sont justement les structures « épurées », c'est à dire nées de la réflexion de la raison sur elle-même et opposées ainsi à l'expérience phénoméniste, qui sont le mieux adaptées en fin de compte à l'expérience véritable ! Par exemple, c'est la géométrie non-euclidienne, c'est à dire une structure « épurée » au plus haut degré par rapport à l'expérience directe et à la subjectivité de nos organes de perception spatiale, qui a servi à Einstein à nous décrire la physique de relativité, et non pas cette structure plus immédiate qu'est l'espace euclidien.

Bref, par son triple travail d'adaptation à l'expérience rationnelle, de réflexion sur elle-même et d'épuration par rapport aux éléments adventices, la raison change peu à peu de structure, non pas au hasard, mais suivant une ligne d'évolution dessinée par son fonctionnement lui-même. On voit ainsi qu'une différence assez notable nous sépare de nos contradicteurs en ce qui concerne la notion même de la raison. Nous n'appellons pas « raison » la même chose, et c'est pourquoi nous ne la trouvons pas aux mêmes âges. Pour eux, qui nient toute structure, la raison est partout, puisque le fonctionnement est le même partout. Pour notre part, au contraire, la raison est une sorte d'idéal, jamais atteint en fait, et vers lequel tend l'intelligence à travers mille péripéties. Aussi nous intéressons-nous surtout à ces obstacles, que l'intelligence doit contourner et qu'une saine morale intellectuelle doit se rappeler sans cesse.

Venons-en maintenant au problème des stades. Pour autant que nous comprenons Mrs. et Mr. Isaacs, ils nous demandent, sur ce point, de choisir entre deux voies : ou bien pas de stades (« No successive structures ») ou bien une théorie stratigraphique de l'esprit qui nous ramènerait à une hypothèse biologique de récapitulation. Or nous croyons que la vérité est entre deux, et nous l'avons toujours cru, bien qu'on nous ait prêté la seconde opinion par un malentendu évidemment dû au manque de précaution de nos exposés.

Pour nous, il existe des stades, mais qui ne sont nullement dûs à une simple maturation interne et inéluctable, analogue à la maturation embryogénique. Ces stades sont l'expression des trois

phénomènes d'adaptation à l'expérience, de prise de conscience de la raison par elle-même et d'épuration de la raison, sur lesquels nous avons insisté. Or il est évident que ces trois facteurs dépendent eux-mêmes du milieu physique et social dans lequel se trouve engagé l'enfant. Il est évident, par conséquent, que la succession de ces stades peut être accélérée ou retardée par le milieu et que les âges moyens varieront d'un milieu à l'autre. Le fait même que nous ayons tant insisté sur le facteur social, dans notre interprétation du développement intellectuel, montre assez que nous n'avons jamais conçu le déroulement des stades comme réglé de l'intérieur à la manière d'un développement organique. Aussi avons-nous été très surpris de voir que des auteurs tels que Mrs. et Mr. Isaacs, dont la plupart des objections à notre sujet sont très fortes et très mûries, pensent pouvoir démontrer l'inanité des stades simplement en faisant voir que certains phénomènes se produisent à la Malting House plus tôt ou plus tard qu'à Genève ! Ce genre d'arguments porte contre la théorie « stratigraphique », mais nullement contre une théorie faisant sa part au milieu social.

Je dirai même plus. Les stades du développement intellectuel sont caractérisés, non pas par des croyances précises, qui apparaîtraient chez l'enfant avec un contenu *ne varietur*, mais par des tendances ou des « attitudes » de l'intelligence. Qui dit structure, en psychologie, ne dit pas, en effet, idées innées ou à *priori*, mais simplement formes d'organisation ou orientations d'esprit. Il nous paraît donc évident que, selon le milieu, telle tendance se développera exagérément ou ne se manifestera au contraire que sous forme larvée. De même qu'en biologie tel caractère héréditaire peut se manifester ou demeurer « latent », en fonction, entre autres, des excitants du milieu, de même en psychologie il nous paraît évident que des tendances propres à l'enfant peuvent être rendues « manifestes » ou « latentes » en fonction de l'ambiance. Or, répétons-le, le milieu de la Malting House, si privilégié soit-il au point de vue pédagogique, est un milieu exceptionnel au point de vue psycho-sociologique et rien ne nous étonne dans le caractère spécial des résultats qu'il a produits.

Enfin et surtout, il n'y a pas de stades généraux. Si impressionnés que nous ayons été par la tentative de Pierre Janet, nous n'avons pu le suivre jusqu'au bout dans sa classification des stades de l'esprit. Nous allons voir pourquoi, en parlant des « décalages ». Il n'y a de stades clairs et satisfaisants, que lorsque l'on s'en tient à un domaine précis et bien délimité. Il y a ainsi des stades dans le développement des idées concernant l'ombre, le vent, les machines, peut-être la causalité en général (mais en gros et la

part faite aux « décalages »), le langage, le comportement social en tel milieu circonscrit, le raisonnement, etc., etc. Mais si l'on essaye de réunir tous ces stades en stades généraux, c'est le désordre et l'arbitraire.

Pourquoi en est-il ainsi ? Nous touchons peut-être là au point central du problème de la maturation. S'il n'y a pas de stades généraux, c'est que le progrès structural de l'intelligence n'est pas dû seulement à l'expérience, mais encore et surtout à la réflexion de la raison sur elle-même, autrement dit à la prise de conscience de son propre fonctionnement. Par conséquent, il y a des plans différents de conscience, et une même opération ou une même notion peut apparaître beaucoup plus tard sur un plan que sur un autre. Par exemple, l'enfant construit l'espace sur le plan de l'action, durant les deux premières années de son existence, alors que quelques années plus tard il sera encore incapable d'exécuter en pensée (c'est à dire sur le plan de l'intelligence réfléchie) les opérations ou les déplacements auxquels il s'est habitué dans son expérience sensori-motrice. De même l'enfant découvrira la causalité physique sur le plan sensori-moteur ou pratique bien avant de pouvoir traduire cette structure en notion abstraite et de pouvoir l'appliquer à des problèmes d'intelligence simplement déductive.

Il est évident, étant donnés ces « décalages » d'un plan de pensée à un autre, qu'il devient extrêmement difficile des'entendre, sans une terminologie précise, sur l'âge moyen à laquelle apparaît une notion, une opération ou n'importe quel événement intellectuel. De là les malentendus sans fin qui nous séparent de nos contradicteurs.

Par exemple, tout le Chap. IV. du volume que nous étudions est censé nous montrer l'existence chez le petit enfant de la causalité physique, du raisonnement scientifique, de l'expérience proprement dite, etc., et par conséquent est censé nous apporter la preuve « positive » (par opposition à nos preuves « négatives ») de l'identité de l'esprit à tous les âges et de l'absence de stades. Mais sans que cela diminue en rien l'intérêt de ces faits, ce qui nous paraît diminuer la valeur de leur interprétation, c'est qu'aucun effort n'est tenté pour préciser le plan de conscience auquel appartient chaque fait et pour dégager la sériation génétique des acquisitions de ce point de vue particulier. Voici Frank (5 ; 0) qui étudie (p. 125) le mécanisme d'un volet de lucarne en expérimentant au moyen des deux cordes attenantes, ou George (4 ; 1) qui essaye sur diverses substances de trouver celles qui fondent et celles qui ne fondent pas (p. 125). Pouvons-nous diagnostiquer dans ces deux comportements l'existence de la

causalité mécanique et de la loi scientifique ? En un sens, cela est évident : la recherche des contacts spatiaux et la généralisation propre à la loi apparaissent bien avant le langage et, du point de vue fonctionnel, il n'y a pas de différence entre l'organisation élémentaire de l'univers chez le petit enfant et l'élaboration raffinée de la science. Seulement, de point de vue de la structure, nous pouvons nous demander si ces enfants, capables de telles conduites sur le plan de l'intelligence pratique, en demeureraient capables sur le terrain de la réflexion ou de la déduction pure. Nous pouvons nous demander quelles notions sont à l'œuvre dans l'esprit des sujets que nous voyons agir ? Nous pouvons douter que la science soit née simplement de la technique, sans qu'un travail immense de traduction symbolique et de réflexion sur les notions vienne rendre cette technique consciente d'elle-même. Bref, entre l'expérience (réelle ou mentale) primitive et le raisonnement maître de lui-même nous devons distinguer une série d'étapes et de décalages sans lesquels tout retrouver dans tout devient un jeu facile. Assurément dans ce Chap. IV. nous trouvons des faits de pensée réfléchie aussi bien que d'intelligence pratique. Mais l'interprétation de nos auteurs distingue si peu ces deux plans que nous ne saurions y trouver la réfutation attendue de l'hypothèse des stades.

Une remarque nous fera mieux comprendre la chose. Mrs. Isaacs fait état (p. 89) de la présence au même âge de formes de pensée très différentes (Dan à 5 ; 9 explique correctement la bicyclette tout en utilisant en d'autres domaines la précausalité magique) pour écarter la doctrine des stades structureux de la causalité. Mais s'il existe des décalages d'un plan de pensée à l'autre ou d'un domaine à l'autre (et nous l'avons admis dès le début de nos recherches), ces chevauchements de notions n'ont rien que de très naturel et nous en aurions des quantités d'exemples à citer nous-mêmes !

De même, le Prof. Valentine, Miss Hazlitt et bien d'autres ont signalé la présence de notions chez l'enfant bien avant les âges que nous avons indiqués. Mais le tout est de s'entendre sur l'emploi effectif de ces notions. Que l'idée de hasard, ou d'exception à la règle, etc., apparaissent très tôt dans l'intelligence pratique, ou l'expérience informulée, cela est clair. Mais que ces mêmes notions deviennent des conceptions capables d'être utilisées dans la pensée abstraite ou la représentation du monde, c'est une autre question.

Bref, si l'intelligence présente une activité fonctionnelle constante, sa structure se modifie peu à peu au cours de stades successifs ; mais, ces stades étant réglés en partie par la prise de

conscience que l'intelligence prend d'elle-même, les notions n'apparaissent pas en bloc à un âge déterminé, mais avec des décalages relatifs aux plans différents d'action ou de pensée.

Venons-en maintenant à une dernière question, celle du facteur social. Si nous l'avons laissée pour la fin, ce n'est pas que son importance soit négligeable, mais bien que les malentendus sont si grands, sur ce point, qu'ils n'auraient pu être dissipés sans une discussion préalable des questions générales abordées jusqu'ici.

Notons, tout d'abord, que la société n'est nullement une sorte de cause en soi, telle que nous l'attribue Mrs. Isaacs, ou de *deus ex machina* dépendant d'une maturation interne et organique. Nous croyons autant que Mrs. Isaacs, que les faits sociaux demandent eux-mêmes à être expliqués par des facteurs psychologiques. Notre ouvrage sur « le jugement moral chez l'enfant » en fournira incessamment l'indication. Seulement, nous pensons avec l'école française de sociologie, que la société une fois constituée transforme les individus et réagit sur eux comme toute totalité vraie réagit sur les éléments dont elle est composée. Quelles sont ces réactions ? Bornons-nous ici à deux remarques qui viennent fournir un complément indispensable aux considérations précédentes.

En premier lieu, la société (c'est à dire donc simplement le rapport psychologique de deux ou plusieurs individus entre eux) aide à l'individu à prendre conscience de lui-même. En effet, nous ne nous connaissons que par rapport aux autres : toute l'œuvre de J. M. Baldwin est là pour l'expliquer. En outre, prendre conscience, c'est formuler, et le premier système de signes dont nous nous servons c'est le langage, œuvre par excellence de la société. Nous pouvons donc dire, d'une manière générale, que la pensée est consciente d'elle-même dans la mesure où elle est socialisée. Or si la structure de la raison est en partie due à la réflexion de la raison sur elle-même on voit combien est essentielle cette première influence de la société.

En second lieu, la société est régulatrice. Dès que plusieurs individus vivent ensemble, ils se donnent des règles : la règle ou la loi normative est en tous les domaines le produit le plus authentique de l'activité collective. Or ces règles ont, pour l'élaboration structurale de l'esprit, une importance considérable, et c'est ce que nous ne saurions nous lasser de répéter malgré les critiques de nos contradicteurs. On nous accuse de logicisme, mais le logicisme est une certaine manière de concevoir ces règles, comme si elles étaient tombées du ciel dans l'esprit humain. Pour le psychologue, les règles doivent s'expliquer et cela précisément au moyen des rapports que les individus entretiennent les uns avec les

autres. Mais ce n'est pas une raison pour nier l'existence de ces règles. Or la logique, de ce point de vue particulier, est toute entière une sorte de morale de la pensée, que les individus acceptent pour pouvoir penser en commun. Qu'est-ce qui fait que nous évitons de nous contredire, que nous préférons la vérité au désir de chacun, que nous nous soumettons à l'expérience elle-même, bref que nous mettons l'objectivité et la cohérence au-dessus du bon plaisir (du « Lust-prinzip ») et du caprice individuel ? C'est que nous sommes des êtres de raison, c'est entendu. Mais qui nous force à être raisonnables ? Ce n'est pas l'expérience seule, parceque nous sommes toujours libres de l'interpréter à notre manière. C'est l'expérience « honnête », c'est la raison voulue à titre de « valeur » et non pas seulement la raison se proposant à titre de tendance individuelle mêlée aux autres tendances. Bref, nous sommes libres d'accepter ou de rejeter les « lois » de la raison, parceque ces lois ne sont pas analogues aux lois physiques, qui ne souffrent aucune exception, mais bien à l'idéal moral : il suffit que nos passions entrent en jeu ou simplement notre paresse ou notre verbalisme, pour que la raison passe à l'arrière-plan. Qu'est-ce donc qui nous fait mettre la raison au-dessus de tout ? C'est, nous semble-t-il, la réciprocité. Tant que je pense pour moi, je puis doser la raison, le sentiment et la fantaisie selon mon bon plaisir. Dès que je discute avec autrui selon les normes de la réciprocité, je me sens obligé de respecter la raison. Si la société ne crée pas l'intelligence, elle est donc tout au moins régulatrice de la raison. La logique, du point de vue psychologique, n'est pas autre chose que cette régulation.

Or l'enfant est-il d'emblée social en ce sens très précis ? Nous nous sommes servi du terme discutable d'égoïsme pour désigner l'état d'esprit de celui qui ignore la réciprocité intellectuelle ou qui refuse de s'y soumettre. Or l'adulte se refuse bien souvent à cette soumission, et, en ce sens, il est bien clair qu'il est très fréquemment égoïste. Quant à l'enfant nous avons voulu dire simplement que le problème ne se posait pas, au début, pour lui. Sa première attitude, et la plus naturelle, consiste simplement à suivre le cours spontané de sa pensée. Or ce cours spontané peut être dessiné par l'expérience, par l'intelligence, par la fantaisie ou le jeu, par le sentiment et par tout ce que l'on voudra. Mais tant que le moi n'a pas pris conscience de lui même, il se mêle à tout : l'expérience peut être faussée par la perspective particulière de l'expérimentateur (comme cela est si fréquent dans l'histoire des sciences), le raisonnement peut être faussé par les analogies subjectives, le

sentiment peut donner naissance à des croyances, etc. Nous prétendons, et c'est la seule signification de notre hypothèse de l'égoïsme infantin, que pour échapper à ces dangers, la coopération entre les esprits ou la réciprocité intellectuelle est nécessaire : la coopération permet seule au moi de se connaître et de se soumettre aux règles de la raison, là où il peut y avoir conflit entre elles et lui. Or à quel âge apparaît cette coopération ? A tout âge, selon le plan de conscience que l'on considère, ou les différents domaines de l'expérience. Pour ce qui est de la pensée abstraite nous ne l'avons guère observée avant 7-8 ans. Mais c'est là non pas un seuil biologique de maturation, comme Mrs. Isaacs semble nous le faire dire, mais simplement un produit d'équilibre entre le milieu et la maturation. Les deux grands obstacles à la coopération étant le moi individuel et la contrainte de l'adulte, il suffira d'observer les enfants dans un milieu où ils soient intimes (comme les frères et sœurs dans les observations de Katz¹) ou dans un milieu où l'adulte n'exerce qu'une contrainte minimum, comme à la Malting House, pour que la coopération se révèle plus précoce. Ce qui est intéressant ce n'est donc ni l'âge, ni les statistiques portant sur le langage égoïste — ce ne sont que des indices très grossiers — c'est le processus lui-même. Or nous ne voyons rien dans les observations de Mrs. Isaacs qui soit de nature à nous faire douter du rôle utile de la coopération.

Nous comprenons maintenant ce que signifie ce que nous disions plus haut, que l'évolution structurale de la raison est en un sens une épuration : la raison doit se détacher du moi pour devenir objective. Or cette dissociation entre le moi et l'activité rationnelle n'est jamais achevée, et si l'on nie l'égoïsme infantin, il sera facile d'en montrer les restes chez l'adulte lui-même et jusque dans la science. Quel est le progrès, par exemple, qu'a réalisé Einstein en substituant au temps et à l'espace absolus des relations objectives tenant compte du point de vue de l'observateur lui-même ? C'est exactement le même progrès que fait l'enfant lorsqu'il découvre que la lune ne l'accompagne pas, ou que la gauche, la droite, le poids, etc., sont des relations. Einstein a montré que les faux-absolus de la mécanique classique étaient des notions égoïstes dues au fait que l'on n'avait pas dissocié le point de vue de l'observateur des autres relations possibles, de même que l'enfant comprend peu à peu comment les relations objectives sont indépendantes de ce qu'il conçoit ou perçoit directement.

¹ R. U. D. KATZ, *Gespräche mit Kindern*, 1928.

Cherchons donc à conclure. Tout ce qui est donné chez l'enfant se retrouve chez l'adulte et tout ce qui est chez l'adulte se trouve déjà chez l'enfant. Si l'on conçoit la mentalité enfantine comme une structure globale disparaissant d'un bloc et hétérogène à la structure de l'intelligence adulte, l'hypothèse ne présente assurément aucune valeur. Mais à côté de cette hypothèse massive de l'hétérogénéité des mentalités, on peut admettre qu'au fur et à mesure du développement mental, certains éléments diminuent d'importance alors que d'autres, au contraire, s'affirment toujours davantage. Il est incontestable, par exemple, qu'une certaine forme de jeu, qu'on appelle communément le jeu d'imagination, tend à disparaître de la mentalité adulte. Dans le domaine de la causalité, des relations élémentaires, etc., il y a beaucoup de notions qui sont dans ce même cas. D'autres notions et surtout certaines méthodes expérimentales augmentent au contraire d'importance avec l'âge. On ne peut donc ni identifier l'enfant et l'adulte ni les opposer radicalement. Comment faire ?

La solution nous est indiquée, je crois, par N. Isaacs dans sa belle étude des « pourquoi » et c'est par là qu'il nous faut terminer. Cette solution consiste à distinguer le point de vue « prospectif » (qui est en même temps le point de vue « fonctionnel ») et le point de vue « rétrospectif » (qui est en même temps « structural »). Au premier point de vue, c'est à dire lorsqu'on se demande comment l'enfant apprend du nouveau, l'enfant est entièrement comparable à l'adulte : il apprend en faisant des expériences et en les coordonnant. Mais lorsqu'on se place au point de vue rétrospectif, c'est à dire qu'on se demande comment les expériences de l'enfant se sont cristallisées dans son esprit, alors on trouve des différences de structures. La « structure », ce n'est donc qu'une cristallisation momentanée, toujours dépassée en fait par l'esprit dans son fonctionnement. Ainsi présenté, le conflit entre Mrs. et Mr. Isaacs et moi-même est beaucoup moins aigü qu'il ne le semble au premier abord. Et l'accord sera sans doute toujours plus grand à l'avenir, lorsque nous étudierons de notre côté le développement de la raison au point de vue « prospectif ».

Genève, janvier 1931.

II.—AN EXAMINATION OF BOSANQUET'S DOCTRINE OF SELF-TRANSCENDENCE (I).

BY RALPH E. STEDMAN.

I.

THE philosophy of Bernard Bosanquet is, in its own terms, an account of the many levels and stages of self-transcendence into which reality is driven in its activity of self-maintenance. Self-transcendence may be discerned, he insists, in all experience of intelligent beings, in every growing thing and in every process of inanimate nature. The doctrine of self-transcendence, so much to the fore in his Gifford Lectures,¹ is therefore the whole of his philosophy considered in one of its aspects. With this aspect the present paper is concerned.

The reader need not be troubled with an account of the historical affiliations of this doctrine; but I offer three observations as of possible interest. Firstly, if Spinoza had sought to explicate the relation between the infinite modes and Substance he might well have been led to enunciate a similar doctrine: in any case the debt of Bosanquet to Spinoza, alike in matter and spirit, is very great. Then there is certainly a strong likeness between Hegel's doctrine of the 'Dialectic of Thought' and the doctrine of self-transcendence in Bosanquet. Thirdly, in the occasional writings of Nettleship, collected in the first volume of his *Philosophical Remains*, there are passages markedly similar to those which Bosanquet advances with the weight and elaboration of final philosophy.² Having in mind the many Anglo-Hegelian currents of the time, I venture to think that the suggestion derived from Nettleship affords the clue to the doctrine of self-transcendence as we find it in Bosanquet's later writings, where it springs, fully formed, into prominence—almost, indeed, into dominance. In fairness, however, to Nettleship, it must be remarked that these utterances make no pretence of guarded philosophical statement, and are somewhat offset by sentences pointing away from such a monism as that of Bosanquet.

¹ *The Principle of Individuality and Value*, and *The Value and Destiny of the Individual*; Gifford Lectures, 1911-12. Hereafter referred to as *Principle*, and *Value and Destiny*.

² See especially pp. 5, 16 and 17, 53 and 54, 69 and 81.

We should straightway establish the sense in which the term 'self-transcendence' is to be understood in this discussion ; but a difficulty arises. The root verb 'to transcend' simply means 'to be more than' or 'to surpass', but when thrown into the reflexive form what becomes, we may ask, of the self that surpasses itself ? Does self-transcendence bear it away from its self-identity ? We conclude, of course, that in self-transcendence the self is at once 'more than' and the 'same'. But here we strike the nodus of Bosanquet's philosophy. In the sense of a finite being with an essence or selfhood of its own, there is—anticipating my conclusion—in his scheme no self at all, and so no self-identity. If, however, I understand the term aright, there must, in order that self-transcendence obtain at all, be a real, if subordinate, individual to undergo self-transcendence. But when all necessary qualification is made, Bosanquet's account is not, I shall argue, of individuals undergoing self-transcendence, but of 'motions', 'tensions', 'expansions', and 'contractions' within the continuum of the whole,¹ a whole that admits of no distinctions deep enough to constitute a real but subordinate individual. What Bosanquet terms 'self-transcendences,' are merely these 'motions', 'tensions', etc. There are properly no *selves* to transcend, but merely 'tendencies to selfhood', 'claims to individuality' never realised or fulfilled. The doctrine, however, does not straightway disclose this qualification which lies rather in the background of Bosanquet's theory, and in its absence the reader is likely to import the notion that *self-transcendence* is a profitable episode in the *history of a self*.

In the philosophy of Bosanquet we are faced with a paradox. If Bosanquet is to make any show of 'saving the appearances', the kind of monism to which he holds compels the formulation of some such doctrine as this that we examine ; it is also the conditions of his monism that, in the end, make the doctrine nugatory. A comparison with Bradley may make this point clearer.²

¹ *Value and Destiny*, p. 12. Also see *Logic*, vol. i., p. 73. All references to the *Logic* are to the second edition.

² A profitable study might be made of the several points of difference between these two thinkers. It is interesting, e.g., to find Bosanquet in his *Knowledge and Reality* (1885) mildly reproaching Bradley for slighting the distinctions within the real. This difference brings the one to emphasise the gulf between appearance and reality, the other to write copiously of the 'value and destiny of the finite individual'. A difference is suggested by the task each proposes. Bradley embarks upon a "Critical study of first principles"—a description of his work no less than of the one book it prefaces : Bosanquet at the close of his career remarks, "My study has mainly consisted in a critical survey of experience".

Bradley's concern is to show that, being wholly infected with contradiction, no appearance open to our knowledge has any place as such in reality. His theory comes at bottom to complete scepticism, since the real is nowhere truly known in this, the only, world we can know. He, therefore, has no strong motive to examine or to order in a scale of being which is not reality but the distortion of it, the finite individuals of our experience. Bosanquet, however, while holding the same ultimate principles as Bradley, and believing in the sole reality of the absolute, has—as his writings show—a more acute sense of and responsibility for the variety of finite individuals. Accordingly, he is moved to seek a mediating principle by which the appearances may somehow be saved and his belief in the absolute vindicated. He seeks a principle, that is to say, by which to satisfy the claims both of the one and the many, where the one alone is *really* real—clearly a heavy task. Bradley takes the 'short way' with the problem, and denies without qualification the reality of the many; Bosanquet, less consistently, I think, but with truer insight, attempts to reconcile them by means of the doctrine of self-transcendence, and proceeds to consider 'individuals' according to their 'degree of individuality'. He essays to show that finite individuals—all beings of our world and experience—inevitably transcend themselves in the effort of self-maintenance, and so 'break down' or 'keep in solution'—either metaphor is used—their boundaries, thus mitigating their manyness and pointing to their unification in the whole.

The doctrine of self-transcendence in Bosanquet's philosophy is cognate to the 'principle of individuality' as he construes it.¹ The latter purports to be derived from the nature of the real, which is to form wholes within wholes, and of the lesser to form greater wholes; the former is derived from the same character in its tendency to dissolve the boundaries of the lesser wholes in order to make of them the greater. The one gives account of the tendency of reality to form provisional wholes or individuals as 'way points' to individuality; the other, of the same tendency as repudiating this provisional individuality in the interest of a wider and compacter individual. The individual so-called, is such only by isolation for some purpose, *e.g.* for recognition, of what is really a non-isolable element in a continuum of being. It is permitted the name because it exhibits in an incomplete way the character of individuality or wholeness. These finite

¹ As Prof. C. C. J. Webb, in *Divine Personality and Human Life*, p. 229, points out, Bosanquet's 'principle of individuality' is not a *principium individuationis*, but its repudiation.

individuals are individuals *for us* because our intelligences cannot but isolate and treat them as self-contained. This semblance of self-containedness, however, must be forthwith negated when contradiction and connection become explicit.

In sum, then, the doctrine of self-transcendence is Bosanquet's method of reconciling *his* presupposed Absolute¹ with that which is the presupposition of all philosophy, namely; that there are finite individuals.

The following are characteristic statements of the doctrine :—

"The logical spirit, the tendency of parts to self-transcendence and absorption in wholes . . . is the life-blood of stable existence."²

"The finite individual is a partial world, yet possessing within itself the principle of infinity, taken in the sense of the *nisus* towards absolute unity and self-completion."³

"Belonging as it" (the finite individual) "does to the continuum of the whole and unconsciously inspired by its unity, it is always passing beyond its given self in the attempt to resolve the contradictions which infect its being and obstruct its self-satisfaction."⁴

"Being double-natured it is torn between its existence and its self-transcendence. For no finite existence as such can maintain itself in the whole without incurring contradiction, and the spirit of the whole present in the finite mind, is bound in its intolerance of all contradiction to contradict its own existence. Thus the self, in striving to complete itself will break in pieces every partial form of its crystallised being, will welcome the chapter of accidents, and clothe itself in conflict and adventure."⁵

It "fluctuates up and down the scale of reality" in "amplification and diminution of its microcosm."⁶

"Though fluctuating in range and energy, it has a relative and finite individual nature, an apparent individuality and a certain seeming persistence in time. Yet it has no barrier of division against the absolute, with which it is continuous, to speak in spatial and temporal similes, before and after, and on every side of its spatio-temporal being."⁷

"The finite-infinite creature . . . is always in a condition of self-transcendence. This is the same as saying that he is always endeavouring to pass beyond himself in achievement. That there is always scope for this, his membership of the universe . . . guarantees. He is always a fragmentary being, inspired by an infinite whole, which he is for ever trying to express in terms of his limited range of externality. In this, *ex hypothesi*, he can never succeed. But this effort of his is never wasted or futile. It is a factor of the self-maintenance of the Universe, and so far is a real achievement: and it constitutes . . . an element in the Absolute."⁸

¹ *Principle*, p. 69.

² *Value and Destiny*, p. 4.

³ *Ibid.*, pp. 16-17.

⁷ *Ibid.*, p. 129.

² *Ibid.*, p. 24.

⁴ *Ibid.*, p. 12.

⁶ *Ibid.*, p. 14.

⁸ *Ibid.*, p. 304.

II.

In these pages we cannot consider every phase and application of so comprehensive a metaphysical theory: I shall therefore confine my discussion in the present article to the view of contradiction integral to the doctrine of self-transcendence, and in the concluding article, to the view of identity—and its affiliations—underlying it; for it is here, I believe, that the crucial issues arise.

It has been remarked by his critics, that Bosanquet confuses the realms of logic and ontology. In the first of the passages quoted above the confusion is quite evident. It is the '*logical* spirit' otherwise named the 'spirit of non-contradiction' and 'the tendency . . . to self-transcendence' which is the 'life-blood of stable *existence*'. In the succeeding passages the bearing of 'contradiction' upon self-transcendence is emphasised and illustrated.

Bradley, it has been noted, by means of the inherence of contradiction, impeaches the realm of appearance: Bosanquet appeals to the same as the motive of that self-transcendence of 'apparent individuals' which is the self-maintenance of reality.

He quotes from Hegel:

"What moves the world is Contradiction; it is ridiculous to say that Contradiction is unthinkable. What is true in this assertion only comes to this, that Contradiction cannot be final, and that by its own action it cancels as it maintains itself." And, "Whereas people say that Contradiction is not thinkable, the true thing is that in pain which a living being feels it is actually existent" ¹

This Bosanquet qualifies when he writes:

"Logical contradiction in the forms of pain, dissatisfaction and unrest . . . may *almost* be called an actual existent." ²

My contention is that 'pain, dissatisfaction and unrest' are not forms of 'logical contradiction' at all; and further, that contradiction occurs only in logical situations and is never 'inherent' in any individual.

It is, surely, only by the remotest and most perilous of analogies that these psychological (or social) phenomena may be called 'contradiction'; but it is upon just such perilous analogy that the 'logical' doctrine of self-transcendence depends. Pain, for example, is the effect in sentience and consciousness of nervous stimulations of a certain sort, and the further explanation of the matter can safely be left to psychology.

¹ Quoted in *Principle*, p. 228.

² *MIND*, vol. xv., N.S., p. 3. My italics.

Further, Bosanquet seems to me to err when he observes of finite individuals (and from the observation points to the inevitability of self-transcendence)

"It is impossible but that they should have ascribed to them and ascribe to themselves a false character of self-existence."¹

The bearing of this upon his doctrine is that in asserting of themselves more than can be sustained, they are bound to suffer the penalty of false assertion, which is contradiction. But the precise contrary seems to me to hold, *viz.*, that no finite individual (in possession of his senses) ever ascribes to himself self-existence, and that it is never ascribed to him by others. Nothing in our experience is more certain than the conditionedness and dependent nature of finite individuals. To press an absurd conclusion: Is not Bosanquet, so far as he holds to this view that the self-transcendence of finite beings is motivated by their false self-assertion—and that so they achieve their own 'value and destiny' and sustain the absolute—committed to the extraordinary view that the attainment of the goal and good of finite striving—so far as it has a good—is directly promoted and advanced by pride, pretension and self-sufficiency, or, in short, by what are generally deemed the most fatal of all vices?

I take leave in this connection to discuss a passage treating of Bosanquet's view of contradiction:

"Are not those terms contrary which can in no wise be affirmed of one another, such as the circle and the square? Why, no. They do not impede one another or the process of thought unless we bring them together in a special form, to which their content is inadequate. They may quite well be conjoint predicates of the same complex term, and when thus affirmed, and protected by adequate distinction, have nothing in them contrary to one another. . . . There are places for all predicates and when all predicates are in their place, none of them is contrary to any other. . . . The essence of contradiction is the bringing them together without adequate basis of distinction." And "When we find an implication that predicates can be antecedently 'contrary' or 'opposite', we may infer that contradiction has not been adequately analysed."²

But if in 'bringing together' circular and non-circular we so 'protect' them as not to contradict, are they brought together at all in a situation where (or a sense in which) alone the question of contradiction or non-contradiction is intelligible? Surely not. And if they are thus brought together, will they not inevitably contradict? If of an ornamental gate-post we affirm that it is

¹ *Value and Destiny*, p. 14.

² *MIND*, *op. cit.*, pp. 1-2. See also *Principle*, pp. 224-225.

both circular and non-circular (*i.e.* square), whereas *in the sentence* we affirm of the same subject, *logically* we affirm of one of its parts circularity, and squareness of another part, that is, of several subjects. The only protection that I know of which will prevent these predicates from contradiction is that they be predicated of different subjects, each of which, *qua* subject, is simple. There is no such thing in logic as a 'complex subject'; but there are complex reals of which we may predicate as a whole or as to their several parts. If we say, "The gate-post is black and white", we are not falling into contradiction, because it is understood that a part of the post is black and a part of it is white. In grammar there is one subject involved, in logic there are two. Black and white paint can exist side by side without contradicting, but contradictory predicates cannot stand side by side in the same proposition without contradiction. *Things* do not contradict one another.

Bosanquet can hold the view to which I take exception because he believes that ultimately there is but one subject of all predication, and so, *somehow*, all predicates *must be* compatible. But he can only appeal to a 'protective' distinction because he has already, by his theory of the absolute, denied all real distinction.¹

The supposed inherence of contradiction in the realm of the finite to which Bosanquet traces the movement of self-transcendence is quite unfounded and attaches only to an erroneous view of contradiction.

III.

Knowledge, according to Bosanquet, affords an 'emphatic exhibition'² of self-transcendence, and in this case 'contradiction' is expressed in the 'defect of fact'. In knowing the mind is driven to correct its successive affirmations, and in so doing itself moves along the path of self-transcendence. All that is affirmed comes under contradiction sooner or later. There is perpetually present in 'actual fact' an implicit contradiction, "... a presence which forces us to go farther in the hope of faring better."³ Fact can serve only so long as it is not cross-questioned; it is a mere fragment abstracted from the continuum of experience, and when interrogated falls into contradiction which points for its resolution toward the whole. The truth, therefore, of any fact—Bosanquet is fond of repeating—would be the whole truth, and so, since truth and reality meet in the

¹ I return to this theme in my second article.

² *Principle*, p. 65.

³ *MIND*, *op. cit.*, p. 2.

whole, would be the absolute. Thus the being of the knower—since for Bosanquet the being of the knower *qua knower* is precisely what is known—is carried irresistibly along the path of self-transcendence toward the whole.

Against Bosanquet I maintain that fact is not defective, does not fall into contradiction ; though, of course, it calls for endless supplementation. I quote a passage typical of Bosanquet's treatment of 'fact'.

"Facts, as we call them, are stable to a certain point, and will, so to speak, answer certain questions and meet certain needs, but when we transcend their several limits of stability by bringing them into connection with more of the real world, we become aware that none of them are sufficiently stubborn things to stand as finally coherent. . . . To take an example, if we trust to man's living by bread alone—by bodily comfort—we shall find he cannot, and that though bodily nutrition is actual, we shall fall into contradiction—find that nourishment is not nourishment—if we take it as the exclusive mode in which human beings are kept alive. We shall find other needs asserted ; what we took for our system of 'fact' will not give room for them. Our fact has broken down ; and all our facts break down in some such way, and at some such point. . . . We must admit that what is experienced as actual fact may yet be self-contradictory. . . . We . . . find that action and argument 'like the wind', take us outside it" (our system of fact) "and our petrified facts will neither serve our need nor maintain themselves."¹

I venture to assert—*meo periculo*—that this so-called example of the defect of fact involves a mere equivocation, hinging upon the double use of the words 'bread' and 'live' and 'living'. 'If we trust to men's living by bread alone . . . we shall find that he cannot . . . nourishment is not nourishment'. But, in spite of the aphorism—the sense of which needs no commentary—is it not true, absolutely and ultimately, that nourishment is nourishment—so long as we know what we are talking about ? So long as we assert no more than the power of bread—given other conditions—to *keep a man alive*,² though in all else he be 'without God and without hope in the world' we can never fall into contradiction thereby. None ever doubted this limited truth, and none can have asserted on the other hand that men *only need bread*—or comfort. As 'keeping alive' it may very well be the 'exclusive mode', but as feeding the whole man it obviously is not. The only danger of contradiction seems to me to arise if these two senses are confounded—as Bosanquet appears to confound them, since, did he not, the example would in no wise

¹ *Principle*, pp. 226-227.

² Just as we say that a squirrel 'lives on' nuts, or a Chinaman on unpolished rice.

illustrate his view. With a mere ineptitude of illustration we need not be concerned, but it does appear that 'in some such point and in some such way' every illustration of the 'defect of fact' must fall to the ground. The following example involves no equivocation, but is, I think, no more satisfactory.

" 'I saw A. B. in Victoria station this morning.' . . . Let legal importance attach to this statement and at once every detail becomes doubtful." If cross-questioned we can assert no more than that 'something happened'. "The something which is asserted with absolute certainty, and the definition of which our judgments try progressively to give, can never be defined accurately till it is defined completely. It would then amount to the entire ultimate fact."¹

But if 'legal importance' attaches to my statement that I saw A. B. at Victoria station this morning, then it becomes no less true, but there follow from the fact of my seeing him—which my statement simply asserts—consequences other than those which ordinarily follow from such commonplace observation and assertion. No cross-questioning can throw a grain of doubt upon a single detail of this statement if ever it was true: but by the notorious dubiety of most witnesses before a court Bosanquet seeks to impeach not men's common-sense, but the validity of fact. Logic is not, so far as I know, required to take account of lying, and given the truthful intention of the witness we are confined to one of two possibilities with respect to his statement: it may be either true or false, and if true, it will so stand. If cross-questioning is able to bring out a radical incoherence—as, for example, that A. B. died the night before the alleged meeting, or that I am insane—then the statement is false or possibly false; but if none of the readily determinable and fully-implied conditions—subject to which the event asserted in the statement is possible—can be shown to be absent, then it is true, and its truth is not affected, nor any of its very few details put in question, by the importance attached to it, or by the indefinite research into antecedent, concomitant and subsequent events by relation to which this particular event may be 'explained' or viewed in its connection with the whole. Bosanquet's contention is that no true judgment can be made which does not exhaust the ultimate conditions of the occurrence of any being or event; that definition, in other words, is impossible. This denial of definition is the consequence of his prior denial of real distinction. Against his view I maintain, as a consequence of real distinction in the universe, the validity of definition, and our ability to judge truly of beings or events within the context that conditions them.

¹ *Knowledge and Reality*, pp. 123-124.

If, however, we wish to know who was A. B.'s mother, and by what train he reached Victoria station, and the 'whole truth' about A. B., then our inquiry would lead—were it possible—to the absolute; but so long as we are content with the bare substance of our assertion—of our little fact—we need ascertain no more than that I intend the truth, that there is such a place as Victoria station, and such a person of my acquaintance as A. B. This assertion, and the event or fact it asserts, is subject to conditions, and may be supplemented indefinitely, but is not subject to contradiction unless it is simply false. So long, therefore, as the conditionedness of a being is not forgotten, and we do not judge of it as of a being self-existent and self-maintaining, but with due regard to the system—whether spatial, moral or some other—within which it stands, we can claim to make assertions which are ultimately true or false. The subject of our predication is not reality, nor the system with which the being is connected, but the being itself. Our 'fact' is not defective: and we can therefore deny that by our assertion of fact we are driven into self-transcendence by the immanent spirit of non-contradiction.

But with knowledge, as with any other so-called self-transcendence, the determinative question must be this: Is it a situation comprising two beings, and a real communication between them? If in knowledge that which is known is really other than the knower; if the self stays at home while apprehending that which is other than the self, then we may justly name it—however barren or unilluminating the term—a self-transcendence. This condition, of beings really distinct, Bosanquet's scheme excludes, and is so deprived of the means by which the doctrine of self-transcendence might be intelligible. He *appears* to meet this condition when he says of the self in knowing,

"It goes out into a world which is beyond its own being, and what it meets there it holds in common with other selves, and in holding it ceases to be a self-contained and repellent unit."¹

But such a statement as this waives his theory of identity and of individuality. What, according to this theory, is the 'it' that goes out? and what, if the essence of the self is to be the whole, is ever 'beyond its own being'? and since the self never was a 'repellent unit', how does it 'cease to be' so? To these questions, to which, I think, no answer consistent with the theory can be given, I shall return in my concluding article.

¹ *Value and Destiny*, p. 32.

(To be concluded.)

III.—THE RELATIONS OF MENTAL AND PHYSICAL PROCESSES.

By A. D. RITCHIE.

EVER since the Pythagoreans produced that unfortunate simile about the spectators at the Olympic games, the philosophers have conceived the rôle of the mind as one of pure passivity. They imagine themselves reclining in armchairs with every muscle relaxed contemplating table tops or pennies "presented" to their sight. Though verbally they guard themselves against the accusation of treating the mind merely as a passive recipient of impressions, the general tendency of discussion has been in that direction. The psychologists it is true have noticed that a large part of our knowledge of the external world is the consequence of moving about and handling things, but they have hastened to add that all this merely adds to sight and hearing a new set of sensations, tactile and kinæsthetic, so that the principle of passivity need not be violated after all.

This attitude appears to be the natural result of introspection. Consider an example suggested by Dr. Broad: "I am thinking about my book, I am tired and I want my tea." If we suppose ourselves introspecting in such a situation we have less difficulty with the cognitive aspect than with the others. The feeling of tiredness and the desire for tea either evaporate with introspection, or, if they remain, remain under the guise of internal or bodily sensations. The tiredness is resolved into certain sensations of the legs and back or about the eyes according to the type of tiredness; the desire for tea into sensations of the mouth and throat or stomach. The result is almost inevitable because introspection is a deliberate focussing of attention in a certain direction, which in itself, like any act of attention if it is successful, inhibits for the time being other conative activity and any incompatible affective state. That is to say, if I introspect successfully, my tiredness and want of tea are momentarily gone, though certain sensations connected with them may persist. The thinking about my book is gone too in a sense, but what

persists—verbal images and so on—much more nearly resembles the initial process of thought.

It is not without significance that the Behaviourists who stress bodily activity repudiate introspection and ignore the mind or even deny its existence. Clearly if mind is only a passive recipient all activity is activity of the body. Moreover, what the mind receives is only what the body condescends to let through to it, and the body goes its way as though mind was not there.

It is in the description of sense awareness that the notion of passivity appears most plausible. A full description of visual sensation, for example, starts with a causal series of physical events. The first physical process that need be considered is the reflection of radiant energy from one of these pennies or table tops; this leads on to processes in the retina, in the optic nerve and then in the brain. There, we are given to understand, the matter ends as far as the physical series is concerned or as far as the philosopher is interested in it. The brain would appear to be like a quicksand into which after brief tumult the traveller sinks from sight. The tumult, however, is not quite in vain, for mental events follow or accompany, or *are*, according to Mr. Bertrand Russell, the physical events in the brain. Though the traveller has perished, the press photographer was there and the tragedy is public property. We are further told that the physical processes in the brain leave traces which at a future time may be "revived" to give rise to or be in some way connected with mental images. The corpse may be exhumed and an inquest be held.

In support of this account let me quote from Mr. Russell's *Outline of Philosophy*, where the matter is put lucidly and briefly. "For the sake of simplicity let us take a small self-luminous object. In this object a certain number of atoms are losing energy and radiating it according to the quantum principle. The resulting light-waves become superposed according to the usual mathematical principles; each part of each light-wave consists of events in a certain region of space-time. On coming in contact with the human body, the energy in the light-wave takes new forms, but there is still causal continuity. At last it reaches the brain, and there one of its constituent events is what we call a visual sensation. This visual sensation is popularly called seeing the object from which the light-waves started" (pp. 154-155). "A sensation is merely one link in a chain of physical causation; when we regard the sensation as the end of such a chain, we have what would be regarded as an effect of matter on mind; when as the beginning, an effect of mind on

matter. But mind is merely a cross-section in a stream of physical causation and there is nothing odd about its being both an effect and a cause in the physical world" (p. 156). It is to be noted, (1) that though mind is mentioned as being both an effect and a cause, it is only as an effect that it is discussed here and elsewhere in the book; (2) that the physical series in sensation is considered as one single series both outside and inside the body and as maintaining its identity and separateness in the brain; (3) that though the series is not explicitly said to terminate in the brain, by the use of the words "at last" Mr. Russell indicates that he has no interest in its subsequent career, if any. His account in the passages quoted and elsewhere differs from the account of most philosophers in one important respect only. Others have been content to hint vaguely that physical processes in the brain are in some way connected with mental processes of sense awareness so as to be, *prima facie* at least, their cause. Mr. Russell boldly cuts the Gordian knot and says that a physical event in the brain and a mental event may be one and the same. (See, however, Mr. Alexander's *Space, Time and Deity*, Vol. II., p. 5, for a statement along similar lines.) The more orthodox theories, such as psycho-physical parallelism and interaction, lack the attractive simplicity of this view which identifies certain physical and mental events. For this reason alone, that it saves circumlocution, it is convenient to speak in terms of this theory. Any one who wishes can always translate into the language of his own orthodoxy.

Now there are two important points about sense awareness which an account such as this leaves out. First of all, we do not as a general rule see anything unless we *look* at it. The process of looking precedes and accompanies seeing, and is a process that may easily be manifest to an independent observer as bodily movement. Active movement or active posture are bound to accompany the process as long as it lasts. If the object and the percipient are both stationary, the percipient does not simply fixate the object; if he did he would not see it for long. To keep the object in sight the eyes must be constantly moved a little so as to shift the image about on the retina and keep up the state of excitation by exciting fresh sensitive elements. It is characteristic of all sensation that in order to keep the sensory process going the stimulus affecting any one excitable structure must be varied. If the stimulus as a whole is constant, bodily posture must be varied. On the other hand, even when bodily movement is not needed bodily posture must be maintained, and this in itself is an active process. So far I have been speaking

from the physiological point of view, but everything can easily be translated to the psychological point of view. In general we may conclude that the purely passive philosopher is a figment of his own imagination.

The second point follows at once from this. I do not look at anything unless I am interested in it. The philosopher contemplating the top of his table is in the unusual position of looking at something he is not interested in because he is interested in the visual process itself. He therefore forgets that interest comes in. The simile of the traveller in the quicksand, which the reader probably condemned as misplaced facetiousness, was intended to draw attention to this point. Perception is a consequence and accompaniment of action and is also a prelude to action. The stream of physical processes does not, except occasionally, come to an end in the cerebral cortex. It is only the most timid traveller who is stopped by the quicksand; the others struggle through.

Consider an example in which the perceived object is not without interest. Let us suppose a small boy bent on some nefarious quest who suddenly sees a policeman come round the corner. There is the usual series of physical events—radiant energy, retinal processes, optic nerve and brain processes. But the series does not end there. There are further nerve processes, and very shortly the boy's muscles are in lively action and he himself runs precipitately down the road until several corners intervene between him and the policeman. Even then the series of physical processes is not at an end. He remains for some time panting, with heart racing and pupils dilated, till gradually the whole commotion subsides. Why should the mental event we call seeing the policeman be solely or even pre-eminently associated with the first physical events in the brain that occur immediately after the policeman came in sight? They form only one link in a long chain of physical events and that not the most impressive one. The muscular events are on a larger scale than the brain events, and have just as far-reaching effects on the rest of the body. Moreover, all the subsequent bodily events have their reverberations in fresh brain events. Surely the whole set of bodily events directly following the presence of the policeman is entitled to be identified with the mental event of seeing the policeman. There is a sense in which the movements of the boy's legs constitute a full and complete realisation of the policeman that cannot from the nature of the case be attained in any other bodily process. Even if there is any special reason for associating mental events exclusively with

brain events, why must the brain events be only the very first ones and not include those that occur while the boy is running away? It is commonly said that the boy runs away because he sees a policeman; it is equally true to say that what he sees is a policeman because he runs away.

In the case of the small boy the causal series of physical events beginning at the policeman is simple and fairly short; it finishes up to all intents and purposes inside the boy's body. But if in place of a boy an armed criminal had seen the policeman and had shot him, the series of physical events might have been immensely long and complex, including legal proceedings and pictures in the daily papers. Many of those events could not by any stretch of imagination be identified with the mental event of the criminal seeing the policeman, but it is difficult to decide exactly where to draw the line. For the criminal, if he is the 100 per cent. criminal I am supposing him, seeing and shooting are one act, and the consequences of shooting are not easily separated from the shooting itself.

No doubt somebody will object that I am prejudicing the discussion by all this talk of criminals and small boys with their bad consciences, and he will ask us to consider the case of the small boy's father, that eminent and respectable citizen. He passes the policeman without a tremor and with a friendly nod. In both cases, the objector will say, there is the same physical policeman to see and the same or very similar mental process of seeing him. The physical events outside the body, the retinal events, the events in the optic nerves and in the afferent tracts of the brain right up to the cerebral cortex are the same or very similar. It is only after that, when efferent nervous processes are considered, that there is any difference. It is reasonable, therefore, to identify or correlate the seeing with the last of the similar events, namely the afferent processes in the cortex.

This sounds excellent but contains a fallacy; the seeing of the policeman is not a similar event in the two cases, and therefore ought not to be identified or correlated solely with those physical events which are similar. To the small boy the policeman appears as something huge and ominous, symbol of retribution and harsh justice; to the father the policeman is of reasonable bulk and symbolises a comfortable sense of order and security.

But all this, the objector will say, is not perceived: it is inference and memory, additional embroidery on the actual data of sense, which actual data are really closely similar in both cases. How does he know the data are similar? Because the physical events are similar, he replies. But it is only a small selection of

the physical events that are similar ; the rest are different, for the small boy runs away, the father passes on and nods.

Granted the similarity of the events outside the body prior to the time when changes begin to occur in the retina, from then on the events inside the body diverge more and more in the two cases. *Ex hypothesi* the boy is out on some nefarious quest, the father is not. Before the policeman appears the whole pattern of events in the nervous system and in the rest of the body is different in each. Then there occur common elements in each ingoing stream due to the appearance of the policeman, but divergent elements soon mix with them. Where exactly the change occurs we do not know. To say that all or most of the processes are still similar when the cerebral cortex is reached is a hypothesis and not a very probable one. Between the optic nerve fibres and the fibres entering the cortex there is a synaptic junction in the *optic thalamus* where many things may happen.

When it is urged that the fear excited by the policeman in the boy is the result of inference and memory, and is not part of the plain direct sense experience, it must be remembered that the absence of fear, or at any rate of any external manifestation of it, in the parent is still more indirect and inferential. The father has passed through a stage when he was as terrified, but since then has said to himself, "there is nothing to be afraid of, I am a respectable citizen," and argued himself out of a response which, if not really primitive and immediate, is much more so than is the absence of response.

Consider this matter further from the purely physiological point of view. A general and relatively simple type of animal response to a stimulus is that of advance or retreat. For instance, if I put my finger into a tank with fish in it, they may either swim up to it and nibble it, or swim away from it. Or occasionally they may advance and then retreat, or retreat and then advance. Under special conditions they may ignore it. The last case is the least likely of the five to be a primitive, immediate, or, to use a now popular phrase, unconditioned response. Since similar stimulation of the same sense organ may produce such different response, there must, among other things, be some degree of analysis of the total sensory situation. Let us assume for sake of argument that the unconditional response to large or rapidly-moving objects (such as might be dangerous) is retreat, to small slowly moving objects (such as might be edible) is advance. Let us assume also that the only stimulus is visual. There will be objects of intermediate character, such as a finger,

which may produce one or other or a mixed response according to circumstances. A hungry animal is more likely to advance, to get a meal; a fed animal to retreat, to save its meal. However, for the present discussion the important point is that any visible object that is actually seen tends to produce a response in one direction or the other. Complete absence of response is only likely as a conditioned response; *e.g.*, after repeated trials the fish may discover (to speak colloquially) that a finger is neither edible nor dangerous and become blasé about it; then its presence or absence will not alter their behaviour. Their minds (assuming they have got any) will have attained the complicated state which is characteristic of the philosopher and which he tends to think primitive.

The movements involved in a response of this sort though actually complex may be treated simply. We may suppose that the fish is swimming the whole time and that the object is presented to it at one side. Advance or retreat are then essentially steering movements, towards or away from the object, which are superimposed on the normal swimming. This assumption is, of course, too simple, because there are several ways in which the animal can swim and turn, but it will suffice for the present purpose. The turning movement involved in advance may be treated as consisting in the excitation of one set of muscles and in the inhibition of another set; the turning movement in retreat which takes place in the opposite sense, as consisting in the precisely opposite process; just as extension of the arm consists of excitation of extensor and inhibition of flexor muscles and flexion of the arm of inhibition of extensors and excitation of flexors. The two processes are antagonistic so that a mixture of the two or compromise between them would lead to paralysis, not to normal swimming. The absence of response when the fish has become indifferent is not therefore a mixture of the two turning movements or a compromise between them, but the result of a new process which inhibits turning either way and leaves the normal swimming movement uninterrupted. It is a special type of inhibition whereby nothing fresh passes out among the outgoing nervous processes to disturb a normal pre-existing pattern of excitation and inhibition that results in swimming straight ahead. If ever the fish thinks, then he thinks the first time this happens.

Perhaps the matter can be made clearer by restatement. The ordinary state of affairs in a sentient animal is a certain pattern of ingoing impulses in the central nervous system passing over to a certain pattern of outgoing impulses. Any fresh sensory excitation

disturbs the ingoing pattern and therefore tends to disturb the outgoing pattern too. Small differences of the ingoing pattern may produce big differences of outgoing pattern. The change over in outgoing pattern is generally clean cut. The fish (like the "practical man") either advances or retreats; it does not as a rule pause or hesitate. Of course there are conditions in which, once one particular type of response has been elicited, the opposite type is thereby more easily elicited. The fish having retreated may be the more ready to advance later (in this also resembling the "practical man"). But an oscillation of behaviour like this is quite distinct from absence of response. If under any circumstances an ingoing impulse known to be otherwise adequate fails to pass over to an outgoing impulse, it is because it has been inhibited on the way. Now the nature of inhibition in the central nervous system is not known, but it is in all probability an active process of some sort. That is to say, if a nervous impulse is stopped, it is stopped at a synaptic junction; and if an otherwise adequate set of impulses are stopped, it is because of other impulses previously or simultaneously arriving at the synapse. The blocking impulses are likely to be outgoing impulses, so that in that case inhibition is due to a special type of efferent impulse, that is to say, to a fresh active process superimposed on another and abolishing its effect.

This view of inhibition is in accordance with Sherrington's theory (*Proc. Roy. Soc., B.* Vol. 97, p. 519, 1925), and is probably in accordance with the views of most physiologists. It is possible that there may be cases of inhibition due to special combinations of afferent processes "cancelling out" in some way. But the example chosen is not likely to be of this type because the general sensory situation is such that activity was previously obtained. The change has occurred in the organism itself, not outside, nor apparently in the afferent processes. The inhibitory process is most likely to be an efferent process.

Where an animal has become indifferent to the presence of an object to which at first it was not indifferent, the final situation is as though the animal did not perceive the object, or, if you prefer, as though the sensory mechanism was not excited. But it is not sufficient to say this, as a Behaviourist might be inclined to do; because we know that previously the animal did perceive or did respond. An additional inhibitory process provides the readiest explanation.

In the case considered the lack of response is merely absence of interruption of the normal behaviour by a new stimulus. There are of course conditions under which all external activity

stops, as in "shamming dead" and in sleep; but these do not concern us at present.

The picture that has been drawn of the processes in the nervous system is of an ordered varying ingoing pattern passing up and then coming down again as an outgoing pattern of excitations and inhibitions. The complications due to the hierarchy of centres and to the possibility of impulses passing over from afferent to efferent sides at different levels need not be considered. The outgoing stream in its turn produces bodily changes which modify the pattern of the ingoing stream. There are plenty of places where constituents of the streams may fade away or be abolished and the cerebral hemispheres are presumably among them, but that is not their only function nor is it theirs exclusively. Anatomical language by indicating that paths end in them lends colour to this suggestion, it is true, but it is quite unwarranted. The hemispheres are junctions of a special sort as much as or more than termini.

If this is the case, why should such special privileges be accorded to the cerebral hemispheres in connection with mental processes? Mr. Russell's doctrine is peculiar in identifying mental and cerebral events, but it is peculiar only in the identification. Probably most philosophers would agree that whatever the relation between mental and bodily processes, it was the cerebral processes exclusively that possessed the relation. Clearly we may ask, why? If in Mr. Russell's words a mental event is a cross-section of brain events, how thick is the cross-section, and where does it begin and end? Some degree of pre-eminence must be granted to cerebral events because the cerebral hemispheres are the most important organs of the body; just as the colonel is the most important person in the regiment. But if the colonel supposes he is the regiment, he is deceived.

Mr. Russell has himself thrown out a suggestion showing how the problem may be tackled. "The percept is a term of the process (*i.e.*, light encountering matter) characterised by the fact that it occurs after traversing a region of a certain sort—to wit an eye, an optic nerve, and part of a brain. Owing to its causal continuity with other parts of the process, it has, as its twofold location, on the one hand, the source of light, on the other hand, the brain" (*Analysis of Matter*, p. 259). The important point here is the idea of twofold location of the percept, an idea Mr. Russell unfortunately does not develop, and which, indeed, is not easy to reconcile with what he says elsewhere. The essence of sense experience is perceiving something *out there* from *here*, and any account of sense experience which slurs over

or denies this reference to two places must be regarded with suspicion. This is true of internal sensations as much as it is of external. When I say I have a pain in my stomach, my stomach, though *here*, is not in quite the same place as *I*. When we proceed to construct physical space out of the material provided by sense experience two regions of physical space are marked off, one where the perceived physical object is, the other where the physical object that is my body is or part of it. The distinction between *here* and *out there* seems to rest on something that is primary in sense experience. It is an integral part of my feeling of a headache that it is *here* and of what my eyes see that it is *out there*. Analysis and reflection only give depth and precision to something that is present from the beginning. The means by which we can develop our ideas of the physical world from the primitive data of sense have been dealt with by many writers and particularly by Mr. Russell, and need not detain us here.

It will be seen that the present theory has the merit, if it is a merit, of giving some standing to naïve realism; a theory we all adopt except when we philosophise.

There are some complications that must be mentioned before proceeding further. First of all, one that is mainly verbal. If percepts¹ are ingredients of private sets of perceptual space-times, and physical objects are ingredients of one common system of Space-Time, which is Mr. Russell's view as I understand it, then it is only by a metaphor that we can speak of a percept as being located in physical Space-Time. It is evident, however, that as Space-Time is constructed out of space-times, there is a corresponding literal statement possible, though an intolerably complicated one. Therefore the metaphor seems to be a harmless one, if used with caution. On Mr. Alexander's theory this complication does not arise; at any rate the literal statement is much simpler, for the percipient is in direct contact with some part of Space-Time and every percept has a location in it in a perfectly simple sense, though this primary location is not the whole story. On any theory there seems to be no inherent objection to identifying a percept with physical events, and thereby assigning it a position in Space-Time, as long as it is remembered that a full literal statement of what is meant may be a very complicated business.

Secondly, it is admitted that the identification of position *out there* is liable to error. But the nature of all such errors, due to

¹ The term percept is used here and in what follows in preference to others, in order to exclude sensory images and undiscriminated sense awareness.

pools of water, mirrors, excess of alcohol and what not, has already been sufficiently discussed by many authors. In all cases the errors and illusions are due to unusual or unexpected relations among physical objects, such that normal expectations are falsified. The case is not altered in any important respect by the use of any particular theory as to the relations between physical events and mental events, as long as the relations, whatever they are, are regular and systematic. There is no reason to suppose that if our theory will suffice to describe the normal case where there is no error it will not suffice by the use of ordinary modifications of phraseology to describe the abnormal case also.

The other difficulty is of a more serious sort; that the view advocated does not allow for any sharp distinction such as is usually made between the organism and its environment. The physical events correlated with mental events are partly inside and partly outside the organism. It must be insisted that the customary distinction between organism and environment is merely one of convenience for certain biological purposes, and in other connections is arbitrary and possibly misleading (as Mr. J. S. Haldane has frequently pointed out). If we consider only the state of a living organism at an instant or over a short period, the distinction seems natural and clear cut, but if we consider also, as we ought, its behaviour over a long period, and specially its whole life history, the distinction is seen to lose its sharpness and value. The life history is an ordered pattern of events with a rather vague and fluctuating boundary. There is no enduring lump of matter quite separate from other lumps. The organism possesses a sort of core, the central nervous system, which is a system of events of a specially elaborate and highly integrated type. As we pass outwards away from this core, we pass to simpler and less integrated sets of events until finally we reach a region where there is no sign of organisation that is related to the organisation of the core. In other words, considering larger and larger spatio-temporal volumes, starting with the events that constitute the brain, we pass from the centre of organic activities to those belonging to less and less essential parts of the body, then to what is mostly outside the body, and only briefly part of it, to what is outside but causally related to it, and finally to what has no relevance at all to the life history of the organism. It is important to realise that to reach a region of events entirely irrelevant to the organism one has to go very far afield, in fact, outside the solar system. Within the region of events that are relevant to the organism the distinction between organism and

environment is not a sharp one. The distinction arises from the fact that at any given moment there is a definite boundary between matter inside the body and matter outside, in spite of the constant interchange between the two. From the point of view of the organism itself, the distinction corresponds to that between sensory processes arising from events inside the skin and outside the skin, or between *here* and *out there*. That is to say, we start with a strong subjective bias in favour of emphasising the difference between organism and environment.

From the point of view of the environment, the organism is distinguished as a centre towards which are focussed processes otherwise entirely random. As when the green plant absorbs the sun's rays or when a man looks at an object. But there is no hard and fast distinction between the kind of processes occurring in the organism and those outside. It is merely that the organism introduces a greater degree of order than would be there without it, and forms the centre of the orderly processes.

The physical side of seeing is a causal series of processes originating in a source of light and continuing as nervous and other processes in a percipient body. The causal series does not necessarily terminate in the brain or in any particular place inside or outside the percipient body. Where the causal series terminates depends on circumstances, as the examples used have shown. But in any case, processes inside the body form part of the causal series. Now, if we are going to identify the percept with a physical event, we ought to identify it in such a way as to include, if necessary, the whole causal series; at least, so as not arbitrarily to exclude any part. Thus it is necessary to consider a spatio-temporal volume of physical events partly outside and partly inside the body. The earlier and more distant events selected according to rules mark out the volume where my physical body is. I am assuming that there are definite rules of selection, as otherwise we should not have arrived at any systematic knowledge of physical things; but I do not profess to be able to state the rules.

There is an important difference between the events in the body and the events outside which precede them; as the events outside vary, so do the place and quality of the percept vary and (illusions apart) there are definite formal relations between them. I see, for instance, a certain coloured patch in a certain place, and there are usually definite relations between the visible features I see and certain physical transactions at the place of the physical object. If we consider cross-sections of the events in physical space, starting at the object and working towards the percipient,

there is a distinct pattern of events maintained. If it changes, it is in a simple and systematic way dependent on the medium in that particular region. The same is true of cross-sections of events in the eye, and probably in the optic nerve. But the further we penetrate into the body, the more the pattern is broken up and confused, the more complex the laws of the changes of pattern become, and the greater the number of fresh factors from other causal series that come into play. The pattern of the ingoing processes does not survive among the outgoing processes. Consequently very slightly different physical situations may give rise to very different bodily processes, as in the case of the fishes, and of the boy and his father with the policeman. According to the view here maintained, the differences in bodily processes correspond to differences in the percept. The physical correlate of the mental events is the whole, or a large part, of the spatio-temporal volume of causally-related physical events. It is true that the outer limits of this volume are only vaguely defined. It has outer layers of relatively slight relevance, but as we proceed inwards, considering smaller and smaller volumes, we come to events of greater and greater relevance, and it may be readily admitted that there is a sort of nodal region of maximum relevance in the region occupied by events in the cerebral cortex. There is justification from the known functions of the nervous system for attributing special importance to these regions, though not for considering them only to the exclusion of everything else.

It might be argued that of the factors concerned the cerebral cortex is the last to appear in the process of evolution, and that without it or at any rate some fairly complex nervous system no sense experience can exist. Consequently, the percept must be identified with the last link in the process, and not with any other. This argument is rather like saying that the keystone must be the arch because without it the arch cannot stand up. The elaborated nervous system is necessary for discrimination and analysis of what is given, and for a varied appropriate response to the situation, but it is not necessary for that primitive apprehension which is present wherever there is life and possibly elsewhere too. It may need a cerebral cortex to discriminate the sun's spatial relations and to decide when to avoid and when to court his rays; but the plant apprehends them equally well, in its manner, by growing. It may be more than a mere metaphor to say that the stone apprehends them too by getting warm. In so far as the plant has experience its "percept" of the sun is the whole relevant volume of events, including radiation, absorption and growth. The plant's "percept" is much simpler than the

man's, but not radically different (*cf.* Mr. Whitehead's theory of "feelings").

From the point of view of the cerebral cortex the whole complex of events is divided naturally into ingoing and outgoing events. Though this division is to some extent arbitrary, let us adopt it for the moment. In the series of ingoing events, as has been said already, a certain pattern tends to be maintained. When I look at the full moon circularity is a characteristic of the whole series of ingoing events, from those that constitute the physical object itself up to the events in the optic nerve, and probably in the brain too, and circularity is also characteristic of the percept. This example is, of course, a specially simple one. If I look at the Great Bear, that geometrical figure that enables me to pick out the constellation is not itself characteristic of the physical objects that are the stars concerned, or of any physical process at any great distance from the observer. Nevertheless, there are geometrical relations among the stars and the rays of light from them, such that an independent observer could predict the figure which I see, or to be more precise, which I identify with my percept. The percept, in so far as it is something towards which the percipient is merely passive and receptive, is to be identified, I suggest, with the whole set of causally-related ingoing physical events. The limits of the causal series may be vague, but may in general be defined by the persistence of those formal relations that can be discerned in the percept, such as the circularity of the moon. It is true that in this case the radiant energy of the sun is causally related, and so forms part of the full causal series that physics has to deal with. However, there is nothing of the nature of circularity, in this further part of the series, which is relevant to the moon's circularity, and that seems to be a reason for leaving it out of account. On the other hand, if I look at the full moon in a mirror, the volume of events to be included is not merely that which begins at the mirror but includes the moon. Again, the apparent spatial relations of the seven stars I call the Great Bear are not a simple property of the physical objects that are the stars; therefore these physical objects are not part of the percept. There are admittedly certain difficulties in this view, and it is conceivable that one might be driven to admit that in a sense each percept was coterminous with the whole physical world; but possibly the consequences of such an admission are not as appalling as they appear at first sight.

It is not possible to discuss here all the questions that arise from the considerations just put forward, but there are some

obvious difficulties that must be dealt with. The first is that the old problems of primary and secondary qualities appear in a specially awkward form. Are we to say that the circular figure of the full moon is part of the percept, and therefore capable of being identified with physical events, while its silvery colour and the blackness of the sky are merely "the work of the mind"; the "-ing" operating on the "-ed"? Are we to put forward a view that is essentially that of Galileo, Descartes and Locke, but has been rejected by practically all subsequent philosophers? There is, of course, a valid and important distinction between primary and secondary qualities in that it is the former that are "geometrical," and therefore immediately available for the purposes of physics, whereas the latter are only indirectly used. In fact, it was for the purposes of physics that the distinction was introduced. On the other hand, if the work of the mind is involved in the perception of colour, we can hardly avoid the conclusion that it is also involved in the perception of shape. There are insuperable objections to a theory which implies that the roundness of the moon's disc belongs to one world and its colour to another. Whatever the difficulties, it seems best to say simply that both the perceptual colour and shape *are* the relevant physical events. It is true that we can see no inherent reason to correlate certain kinds of radiant energy and certain patterns of nerve processes with a particular sensation of colour; but on the other hand, it is an illusion to suppose there is any connection other than a purely customary one between the mathematical relations that constitute circular arrangement among physical objects and a circular shape in the field of sense awareness. A blind man, who had been taught geometry by analytical methods entirely without the use of figures and then had his sight, would at first consider the connection to be purely conventional. There seems to be no special reason why geometrical relations among physical objects should be associated with visual patterns or tactile and muscular combinations, instead of with combinations of sounds. The difficulty, in fact, is to see why any particular physical arrangement should be connected with any particular kind of percept; and the difficulty remains on any theory. In any case there are constant and regular relations between certain perceptual characters and certain causal series of physical events. These relations must be recognised by any theory. The theory of identification does not really seem to introduce any fresh complications.

It must be remembered that although there is maintained a certain constancy of pattern in the ingoing stream of nervous

processes, not all the impulses that start from the periphery succeed in getting through, and part of this failure may be due to active, *i.e.*, outgoing, inhibitory processes. There is therefore change of pattern as well as preservation. Part of this change is likely to be elimination of conflicting and irrelevant elements, a sort of tidying up process. There is some reason to suspect that tidying up may include processes of addition as well as subtraction. The outgoing stream preserves certain regularities of pattern ; which must be quite different from the patterns of the ingoing stream. The special function of the central nervous system is the conversion of ingoing to outgoing pattern. On the outgoing side, there is also a certain constancy of pattern maintained as between nervous processes, and posture, movement and activity of internal organs, as on the ingoing side. But even more seriously than on the ingoing side are the processes complicated by inhibitions. Within the central nervous system there are many more outgoing processes than ever reach the other organs of the body. Another peculiarity of the outgoing processes is that every change produced in any organ of the body has a reverberative effect in modifying the pattern of the ingoing stream.

The ingoing stream of processes is essentially a reflection of the external world and of the attitude of the body as one physical object among others ; whereas the outgoing stream is a reflection of the organism's individual response. For this reason we must agree with Mr. Alexander (*Space, Time, and Deity*, II., p. 118 foll.), that what is properly mental is to be correlated with the outgoing and not the ingoing processes. Perception in so far as it is an ingoing process is the operation of the external world on the mind or the contact of the mind with the external world, and this, though not the whole of perception, is a large part of it. The mind *is* the way the percipient reacts to these operations or contacts. This reaction is seen by an external observer as bodily movement and posture and (in theory) the outgoing nervous processes that cause them. What the external observer does not see except imperfectly and with a large admixture of theory are the inhibitory processes. Unimpeded action involves no thought and may even be unconscious, using the word in a simple literal sense without the figurative accretions it has acquired. Thought, as is well known, arises from inhibited action ; a fact which explains why the men of action never think, and the thinkers are liable to be a little abnormal. But I should go further, and say that thought *is* inhibition. There are, however, habits of inhibition, and where it has become habitual it will not be thought any longer, and may be unconscious. To revert to the example of

the small boy and the policeman, when the boy ran away his action was conscious, *i.e.*, it was part of his system of percepts, but probably did not involve thought. The first time he decided it was foolish to run away and walked boldly on, that would be due to thought. But after a time the inhibition of the impulse to run away may become habitual and unthinking, as it probably is with the boy's father.

The most conspicuous feature of the central nervous system is that it is a hierarchy of centres. The nervous impulse may pass over from the ingoing to the outgoing side at any level, or be inhibited. At the lower levels the processes that any one centre is concerned with are simple, involve a limited group of organs, and the response follows a fixed pattern. The higher the centre the more complex the process, the larger the number of organs that may be concerned, and the more flexible the response. At any level reciprocal excitation and inhibition is necessary for the proper coordination of response; but inhibition is specially the function of the higher centres, for the more the behaviour is elaborated and integrated, the more must casual and irrelevant activities be suppressed. By saying that thought is inhibition other than habitual inhibition we are not running counter to anything that can be learned from the working of the nervous system. Ultimately the result of thought, and of the processes of the highest brain centres, will be seen as the substitution of a new pattern of bodily response for an old one; but in order to do this the old pattern must be first inhibited and there may be considerable delay between this and the actual appearance of the new pattern. By the time the action appears, the thinking is finished (*cf.* Alexander, *Space, Time, and Deity*, Vol. II., pp. 119-122).

The introduction of the subject of thought raises two fresh problems, that of mental images and that of the relation of past to present mental processes. Neither of these can be discussed at present. It must suffice to conclude by summarising the purpose of what has been said. First, that even in sense perception the mind is not purely passive and receptive. Second, that the physical correlates of mental acts are not only processes in the brain, but the whole set of causally-related physical processes, and within the percipient's body include both ingoing and outgoing processes. Thirdly, that the nervous process of inhibition is the most important bodily correlate of thought.

IV.—LOGICAL CONSTRUCTIONS (I.).

BY JOHN WISDOM.

IN this paper I want (1) to tell you what I mean when I say "Pennies are logical constructions." and (2) to find the analysis of that meaning. I want to translate "Pennies are logical constructions" as used by me, and to analyse the fact I so express—or more strictly to find what would be the analysis of the fact that pennies are logical constructions if it were a fact that pennies are logical constructions.

I. HISTORY.

I shall not here try very hard to show that what I mean by logical construction is what Russell, Moore and Miss Stebbing mean. It is not easy to know from Russell's language what he means by 'logical construction' because he is confused in two respects: (1) He does not distinguish between saying that a thing is a logical construction and saying that it is an incomplete symbol. He says, *e.g.*, "classes are, in fact, like descriptions, logical fictions, or (as we say) 'incomplete symbols'"¹. As Miss Stebbing says, "Mr. Russell cannot mean that *classes* are incomplete symbols but that classes are *symbolised* by incomplete symbols and are therefore logical constructions".² (2) Russell fails to distinguish between a broad sense of incomplete symbol and a narrow. He failed to notice that the sense in which "The King of England", as used in "The King of England is happy", is an incomplete symbol, is very different from that in which the same phrase, "The King of England", is an incomplete symbol as used in "The King of England exists".³ The phrase is an incomplete symbol in the first sentence merely because it does not

¹ *Introduction to Mathematical Philosophy*, p. 182.

² *A Modern Introduction to Logic*, p. 157.

³ This is an instantial sentence. I call a sentence instantial when it begins "There is" or "There are" or is translatable into such a sentence, *e.g.*, "Unicorns are imaginary", "God exists", "There is an integer between 2 and 3".

name anything in Russell's sense but refers to something indirectly by one of its characteristics,¹ viz., that of *reigning over Englishmen*. The phrase is an incomplete symbol in the second sentence because it neither names nor refers to anything by one of its characteristics.² It is in terms of the second sense of 'incomplete symbol' that logical constructions are to be defined. Russell perhaps failed to notice the difference between the two senses partly because he did not notice that a phrase might be an incomplete symbol in one use and not in another.

Here is another example. Everyone will see the difference between the way in which Mr. Hilaire Belloc uses 'llama' in

"The llama is a hairy sort of woolly fleecy goat
With an indolent expression and an undulating throat."

and the way in which I use it when I say "Yesterday the llama trotted up to me". In Mr. Belloc's sentence "the llama" "stands for an abstraction" as we say. It stands for a typical llama. Typical of what? Typical of llamas. Mr. Belloc's llama is a logical construction, and a logical construction out of llamas.

"But," it will perhaps be said, "why talk in this mysterious way. True, Mr. Belloc's use of the phrase 'the llama' is quite different from yours when you say of your pet llama, 'The llama trotted up to me this morning.' But it is quite simple. 'The llama', used Belloc's way, means 'Llamas' or 'Every llama', just as the phrase 'The heart' as used in medical text books means 'Every heart'."

The answer is that 'the llama' does *not* mean 'llamas' just as 'the heart' does *not* mean 'hearts'. 'The llama' (used Belloc's way) means 'llamas' only in the sense that whenever you utter a sentence beginning 'the llama' (used this way) you are expressing a proposition which could also be expressed by a sentence beginning 'llamas'. But 'the llama' does not mean 'llamas' in the sense that whenever you utter a sentence beginning 'the llama' you can substitute in that sentence 'llamas' for 'the

¹ "The King of England exists (or does not exist)" does, of course, in a sense refer to something by one of its characteristics. But in a sense it does not. We may put the point another way. "The King of England is happy" is about the King of England. And "The King of England exists (or does not exist)" is in a sense about the King of England. But in a sense it is not. Compare Miss Stebbing, *A Modern Introduction to Logic*, p. 25. I cannot state clearly *here* what the distinction between these two uses of 'incomplete symbol' is. If I could I should not write this paper.

² Of course, if kings are logical constructions, then "the King of England" will be an incomplete symbol in the second sense in "The King of England is happy".

llama' and still express the same proposition. To put it briefly: To say something about the llama is to say something about llamas but it is not to say the *same* thing about llamas as was said about the llama. To put it more exactly: Take any sentence "The llama R", where R is the whole of the sentence bar the words 'The llama', *i.e.*, R is the rest of the sentence. Then (1) the whole sentence "The llama R" expresses what can also be expressed by a whole sentence "Every llama S" and by a sentence "Llamas T"; *but* (2) S and T either are not R, or if they are R then R is used in one way in the original sentence, "The llama R", and in another way in the translation, "Every llama R". This alteration in the use of R occurs because "Every llama R" with R used as in "The llama R" does not express anything, *i.e.*, is nonsense. We may express this by saying that 'every llama' is substitutable for 'the llama' (used Belloc's way) but not *simply* substitutable.

Take "The llama is a hairy beast". It is obvious that this can be translated "Llamas are hairy beasts". It is also obvious that "Llamas is a hairy beast" is nonsense. But is not this merely a matter of plurals? Take 'every llama' and the difficulty disappears. We write "Every llama is a hairy beast".

But the *use* of 'is a hairy beast' is different here from what it is in "The llama is a hairy beast". Consider "The gramophone was invented by Edison". This sentence means something which we can express by a sentence beginning 'Every gramophone'. But we cannot arrive at this translation by simply substituting in the original sentence the phrase 'every gramophone' for 'the gramophone'. For if we did we should obtain "Every gramophone was invented by Edison". This will not do. We are not saying this when we say "The gramophone was invented by Edison", although we are saying *something* about every gramophone. Again, consider "The llama was created by God for the benefit of man". This, though about every llama, cannot be written "Every llama was created by God for the benefit of man". In these two examples the fact that the subject phrase 'every X' cannot be simply substituted for the subject phrase 'the X' is obvious because, to obtain a translation of the original sentence beginning 'the X' which shall begin 'every X', we have not merely to use differently the original predicate phrase but we have to use a different predicate phrase. It is when the original predicate phrase is Grammatically Polygamous that it is not necessary to change *it* but only its *use*. And it is in this case that it is difficult to see that though sentences beginning 'the X', used Belloc's way, can be translated by sentences beginning 'every X', the one phrase

is not *simply* substitutable for the other, *i.e.*, not substitutable without change in the make-up or use of the original sentence.¹

It is useful to compare the following case. "The Stuart family is warlike" can be translated "Every Stuart is warlike". Here it seems to me quite clear that 'is warlike' is used in the second sentence (about individuals) in a way different from that in which it is used in the first sentence (about a family), although and *because* to say of a family that it is warlike *is* simply to say that its members are warlike. 'Is warlike' is grammatically polygamous.

I hope that it is now clear that when we say "The horse is herbivorous" we are not using 'is herbivorous' in the way it is used in "Every horse is herbivorous", although the latter sentence expresses what the former expresses. Similarly with "The llama is herbivorous" and "Every llama is herbivorous".

'Every llama', then, is substitutable for, but not simply substitutable for, 'the llama'. There is one more point. The translations—the sentences beginning 'every llama'—are a little less cryptic than the sentences beginning 'the llama'. This misuse of 'cryptic' it will be my business to explain in this paper. Now to say "The llama is a logical construction out of llamas" is just a misguided way of saying "(1) 'Every llama' is substitutable, but not simply, for 'the llama'; (2) substituted—'every llama'—sentences are less cryptic (in my sense) than the originals—'the llama' sentences."

The remark that the llama is a logical construction out of llamas is trivial because of at least three things. (1) Everybody knows not only that sentences beginning with 'the llama' (used Belloc's way) can be translated into sentences beginning 'every llama', but also just *how* to do the translation, *i.e.*, just what other alterations to make in the sentence. (2) Everybody knows what we express by saying that the translations are less cryptic—everybody knows that the heart of the llama is in some sense "an abstraction". (3) The difference in crypticness is very slight.

On the other hand, "England is a logical construction out of Englishmen" is not trivial. For it means "'Englishmen' is

¹ We should distinguish between the use and the meaning of a word. 'Red' and 'green' have the same use in "This is red" and "This is green" though they have, of course, different meanings. On the other hand, the use of 'pleasant' is different in "Chocolate is pleasant" from what it is in "The experience of eating chocolate is pleasant". We tend not to speak of a word as ambiguous unless within the same use it has more than one meaning. Cf. Miss Stebbing, "No word in isolation is properly ambiguous", *A Modern Introduction to Logic*, p. 21.

substitutable for but not simply substitutable for 'England', while the new sentences, beginning 'Englishmen' and having new predicate phrases, are less cryptic than those beginning 'England'". This is not trivial. For (a) some people might doubt it; (b) it is very difficult to say what alteration must be made in a sentence beginning 'England' if we are to find a new sentence meaning the same but beginning 'Englishmen'. Thus "England declared war" cannot be translated "Englishmen declared war". Further, it can neither be translated "Englishmen decided to fight", nor be translated "The majority of Englishmen wished to fight". "Englishmen had selected a man (Minister for War) who decided that they should fight" is nearer what is wanted. (c) When the translation is found it is markedly less cryptic.

The Trinity, no doubt, is a logical construction out of the Three Persons thereof. It is three because facts about it just *are* complicated facts about the Three Persons. It is one because it cannot be said to *be* the Three Persons. It is one because 'The Three Persons' is substitutable for 'The Trinity'. It is three because 'The Three Persons' is not simply substitutable for 'The Trinity'.

We must not say that a table is the string of events which make up its life-history. For then to say of a table that it collapsed is to say of a string of events that they collapsed. On the other hand, the fact that the table collapsed is perhaps nothing but the fact that a set of suitably inter-related events includes a collapse. We may claim that this is so and avoid the mistake of saying that a table is a string of events by saying that the table is a logical construction out of events. (I owe this point to Prof. Moore.)¹

The llama is "an abstraction". You could never meet Mr. Belloc's llama—only llamas. Similarly, you might meet Mr. Ramsay MacDonald at the Regent Palace, but you could not, in the same sense, meet the modern politician there, and you could not in the same sense of 'meet', i.e., so as to say "How d'you do", meet the average man there.

Mr. Belloc's use of 'the llama' is similar to the use of the expressions 'the average llama', 'the modern politician', 'the Englishman' (as used in "The Englishman's word is his bond"), 'the representative firm', 'the psychological individual', 'the economic man'. All these are logical constructions of a com-

¹ More is said on this point in my *Interpretation and Analysis in Relation to Bentham's Theory of Definition. Psyche Miniatures.*

paratively simple type. The llama is a logical construction of still simpler type. We can all see at once how to translate sentences about the average man. The representative firm is a trifle harder. Consider the sentence "The average man has an intelligence quotient of 60". This can be translated into a sentence beginning "every (or any) man". But of course it can *not* be translated "Every man has an intelligence quotient of 60". On the other hand, it *can* be translated "If you take every man's intelligence quotient and add them up and divide by the number of men the answer is 60".

To return to history. Russell made these two mistakes: (1) the substitution of incomplete symbol for logical construction, (2) the confusion of two senses of 'incomplete symbol'—the first a sense in which a symbol is incomplete if it does not name something, the second a sense in which a symbol is incomplete only if it neither names nor refers to something indirectly by one of its characteristics.

Moore saw Russell's mistakes and suggested the following definition: "Lions are logical constructions" means "There is a common usage of the expression 'is a lion' such that in that usage 'is a lion' is an incomplete symbol (in the second and drastic sense above)". I have not quoted words of Moore's, but I believe my words to be very like those Moore would have used. He has not used the expression 'logical construction' in his published writings. I have in lecture notes "classes are logical constructions = 'is a class' is an incomplete symbol".] Moore's definition of incomplete symbol as quoted by Miss Stebbing is as follows: "S, in *this* usage, does occur in expressions which express propositions, and, in the case of *every* such expression, S never stands for any constituent of the proposition expressed". Df. This definition makes the articles 'a', 'the', and 'every' incomplete symbols. This could easily be corrected. It would be corrected if we added to the definition a clause expressing a point on which Moore always insists, *viz.*, that if S is an incomplete symbol and forms part of some sentence, then the rest, taken as a whole, of that sentence is an incomplete symbol. With some amendment of this sort, Moore's definition would, I think, be at any rate nearly correct.¹ But though nearly correct it still has two defects: (1) 'stands for' is not unambiguous for every body, (2) it does not carry the analysis of incomplete symbol as far as it can be carried.

¹ "There is a common usage" is not enough. For every substantive there is a common usage, namely its usage in instancial sentences, in which it is an incomplete symbol.

Miss Stebbing accepts Moore's definition of logical construction and incomplete symbol. I do not like her statement of the case which runs "Any X is a logical construction" = "X is symbolised by 'S' and 'an S' is an incomplete symbol". Df. For one thing, though this way of stating the definition brings out clearly the fact that it is a lion which is a logical construction and the phrase 'a lion' which is an incomplete symbol, it is bad grammar. For if X is a logical construction, then it suggests a lapse of logical grammar¹ to say that "X is symbolised by S".

Miss Stebbing and I both tried to analyse *stands for*,² and not without success. Also, unfortunately, not without mistake. Miss Stebbing says, "Thus an incomplete symbol is neither a name nor a descriptive phrase applying to any constituent of the proposition in whose verbal expression the incomplete symbol occurs". This seems nearly right, but, as Miss Stebbing agrees, no descriptive phrase ever does *apply to a constituent of the proposition in whose verbal expression it occurs*. While I lay myself open to the charge of using 'descriptive phrase' in a peculiar manner without explaining the new manner. For I say that an incomplete symbol is neither a name nor a descriptive phrase. And yet 'The King of England' in "The King of England does not exist" would ordinarily be called a descriptive phrase, while at the same time it is an incomplete symbol.

We may now set down the following clues as to the translation and analysis of "Pennies are logical constructions", as used by Russell, Moore and Miss Stebbing.

1. It is clearly a verbal proposition. And by that I do not mean an analytic proposition about the analysis of some characteristic such as *A father is a male parent*; I mean a proposition about words such as '*Cheval*' means '*horse*'. On the other hand, as Mr. Mace has pointed out to me, it is a verbal proposition which is more important than a translation such as '*Rich*' means '*wealthy*'. It is a remark about how the subject-phrase 'pennies' is used in non-instantial sentences. It is important to philosophy³ because it tells how the sentence is and is not related to facts. And thus provides clues to and prevents mistakes about the analysis of those facts.

It follows from (1) that (2) *Pennies are logical constructions* (or *logical fictions*) does not mean or entail *Pennies are imaginary*. Nor would *unicorns are logical fictions* entail *unicorns are imaginary*

¹ For some indication of the meaning of 'logical grammar' see note on theory of types (next instalment).

² *A Modern Introduction to Logic*, p. 155, note; and *Proc. Arist. Soc.*, N.S., xxix., pp. 66-73.

³ See Susan Stebbing, *A Modern Introduction to Logic*, pp. 116, 117.

or fictitious. Unicorns and phoenixes are of course imaginary. We may, if we like, express this fact by saying "*Unicorns and phoenixes are fictitious*". But we cannot express it by "*Unicorns and phoenixes are logical fictions*". For *Unicorns are fictions* is a proposition about the contents of the world, i.e., an instancial proposition, while *Unicorns are logical fictions* is a proposition about words, i.e., a verbal proposition.

And it follows from (1) that (3) *Pennies are logical constructions* does not entail and is not entailed by *Pennies are ideal constructions* in the sense in which Prof. Stout speaks, in *The Groundwork*, of my ideal construction of a gold house for Smith. We may assert *Utopias are ideal constructions*, but this would neither entail nor be entailed by *Utopias are logical constructions*. For the former is a psychological proposition while the latter is a verbal proposition which could be expressed by "'Utopias' is not a genuine descriptive phrase".

And it follows from (1) that (4) *Pennies are logical constructions* would neither entail nor be entailed by *Pennies are hypothetical entities*, in the sense in which electrons used to be, physical objects would be on Dr. Broad's Sensum theory, and unconscious thoughts and feelings are. An unconscious thought is a hypothetical entity because (1) it never is observed, (2) the hypothesis that there are such things accounts for certain facts which we do observe, and thus has some probability. We may, if we like, express a belief that pennies are hypothetical entities in this sense by saying "*Pennies are inferentials*". Inferentials are Jeremy Bentham's inferred entities.

Now (1), (2), (3) and (4) are also true of what *I* mean by 'logical construction.'

II. SUMMARY.

The following is a summary of the rest of the paper. It is not an exact summary, but it is nearly so.

1. "*Pennies are logical constructions*" means "'Pennies' as we all use the word in non-existential sentences, e.g. '*Pennies are stamped with the King's head*', is a Specious subject-phrase in those sentences". And this means that any sentence with 'pennies' as subject-phrase¹ is not an Ostensive sentence.²

¹ The subject-phrase is the part of the sentence before the verb. The predicate-phrase is the part after the subject-phrase.

² Every sentence suggests an analysis of the fact it expresses. But the suggestion of a non-ostensive sentence is misleading. Philosophy is concerned with the analysis of facts—a doctrine which Wittgenstein has lately preached and Moore long practised. It is consequently important to philosophers to know whether and in what degree a sentence is ostensive.

2. "S is an Ostensive sentence" means that one of two things is the case.¹ It means that S either (1) expresses an elementary fact, E, and Sketches it, or (2) expresses a non-elementary fact, F, and Indicates each elementary fact which is a Main Prop in a Support of F.

3. E is a Support of F if and only if F is either a fact of the form *Something which has ϕ has ψ* or a fact of the form *The thing which has ϕ has ψ* or a fact of the form *Everything which has ϕ has ψ* , while E is a molecular fact *This has ϕ and this has ψ* .

This has ψ is said to be the Main Prop in the support E.

4. "S Sketches, E, an elementary fact" means "Every element in S names one element in E, and every element in E is named by one element in S, and the arrangement of the elements in S shows the arrangement of the elements in E".

5. "S Indicates, E, an elementary fact" means "S is not a sketch of E, but if for the subject-phrase of S a name be put, then the resultant sentence S' sketches E".

So the analysis of "*Pennies are logical constructions*" is *Any non-instantial Sentence with 'pennies' as subject phrase neither expresses an elementary fact, E, and sketches it, nor expresses a non-elementary fact, F, and indicates each elementary fact which is a main prop in a support of F*.

In this summary there are at least these six words which need more exposition—'sketch', 'name', 'show', 'elementary', 'non-elementary', 'express', and 'support'. The meanings of 'express' and 'name' I can only point to and cannot analyse. The meanings of the others I hope not only to point to but also to analyse.

III. FACTS AND ELEMENTS.

The word 'fact' will be used in this paper in an ordinary way. When I speak of an ordinary use of an English word I do not mean a common use among philosophers but a common use to-day among people who speak English. Here are four examples of the way in which I shall use fact. (1) "... the fact that two men were in the wildest struggle"; (2) "... to say nothing of the fact that I shall probably be sick"; (3) "Perhaps this inborn reserve was explained by the fact that, although they had travelled round the world since childhood, they hailed originally from a bleak, wild, marshy country . . ."; (4) "'We're living in nineteen-thirty. Why not remember that?' 'I was going to remind you of that fact'." ²

¹ I have not said that it means one of two, i.e. is ambiguous.

² *Strand Magazine*, December, 1929, pp. 372, 373, 378, 396.

'The Elements of a fact' has a meaning in this paper which can be pointed out as follows. Consider the fact that (1) George is happy, (2) George hates Geoffrey, (3) This is red, (4) This is on that. George and the predicate *happy* are elements in fact (1); George, Geoffrey and the relation *hates* in fact (2); This and *red* are elements in fact (3); and This, that and *on* in fact (4). George is a Constituent of fact (1) and *happy* a Component of it. George and Geoffrey are constituents of fact (2) and the relation *hates* a component of it. This is a constituent of fact (3) and *red* a component. This and that are constituents of fact (4) and *on* a component of it.¹

Again, consider "Some dogs are sleepy", "Every dog is sleepy", "The dog is sleepy". The facts so expressed may also be thus expressed: (1) "Sleepy characterises something characterised by being a dog"; (2) "Sleepy characterises everything characterised by being a dog"; (3) "Sleepy characterises the thing characterised by being a dog".² *Sleepy* and *being a dog* are constituents of each of these facts and the tie *characterises* is a component.

This last point distinguishes the second group of facts from the first. *Characterises* is not an element in the first group of facts. What is expressed by "This is red" is of course equipollent³ to what is expressed by "This is characterised by red". And what is expressed by "This is characterised by red" is of course equipollent to what is expressed by "This is characterised by characterised by red". But these equipollencies are not identities. For when we say "This is red" we do not mean what we mean when we say "This is characterised by characterised by red". It is true that the fact expressed by "This is red" is not merely two things *this* and *red*. It is these two stuck together and stuck together in a certain way. As Mr. Russell said, a fact has a *sense*. It has a logical arrangement. But the arrangement is not an element in it. To say of a thing that it is a house is not to say of it only that it is a set of bricks. It is to say that it is a set of bricks arranged in a certain way. But the arrangement is not part of what the house is made of. A family is not Bill, Betty and Bob. It has an arrangement. Betty is Bill's wife and Bob the child of both. But blood ties are not members of families. Following Mr. Johnson I shall confine the phrase

¹ The constituents of a fact are sometimes universals, as in *Red entails extended*. But a particular cannot be a component.

² I owe this formulation to Prof. G. E. Moore.

³ Two propositions are equipollent if the one entails the other and the other the one. See Johnson, *Logic*, vol. i., p. 140.

'characterising tie' to what arranges the elements of a fact. The confusing thing about the characterising tie is this: if it arranges the elements of a fact F_1 , then there is an equipollent fact F_2 with that tie as an element, and its elements arranged by that very tie.

Mr. Johnson says: "The general term 'tie' is used to denote what is not a component of a construct but is involved in understanding the specific form of unity that gives significance to the construct; and the specific term 'characterising tie' denotes what is involved in understanding the junction of substantive with adjective. The invariable verbal expression for the characterising tie is the verb *to be* in one or other of its different modes. To think of 'a tall man' or of 'a cold sensation' is to think of 'a man as being tall', 'a sensation as being cold'. Here the word 'being' expresses the characterising tie, and the fact that in some cases the word may be omitted is further evidence that the tie is not an additional component in the construct, but a mere formal element, indicating the connexion of substantive to adjective. This is its peculiar and sole function."¹

As to Mr. Johnson's language here—(1) He is using 'component' as I have been using 'element'. (2) It is surely misleading to talk of the tie as *indicating* the connexion of substantive with adjective. That psychological function belongs to the verb 'to be'. The tie is what is indicated. It is the connexion of substantive with adjective, and it has a logical or formal function.

As to what Mr. Johnson means—I see it all plainly except what he says last, which I think untrue. For the characterising tie is *sometimes* an element in a fact. It is an element in the fact *This is characterised by red*. And it is an element in each of the facts in the second group of facts above. What we express by "Every dog is sleepy" is what we express by "*Sleepy* characterises whatever *being a dog* (i.e., canine) characterises". Again, what we express by "There are no dogs" is what we express by "*Being a dog* does not characterise something". Of this more later.

The use of 'Fact', then, in this paper is a well-known *Strand Magazine* use. It is an analysable notion, but with the tools at present to hand I cannot express the analysis grammatically and unambiguously. If I can say "It was because X was P at t", e.g., he was drunk at noon, then I can say, "It was due to the fact that he was drunk at noon". If I can say, "It was

¹ Johnson, *Logic*, vol. i., p. 10.

because X was R to Y at t ", *e.g.*, this was on that at noon, then I can say, "It was due to the fact that X was R to Y at t ". The X's and Y's and P's and R's are Elements in the facts. The X's and Y's are Constituents. The P's and R's are Components. Besides elements in facts there are "Directors" for facts.

The Director for the first kind of fact, X was P at t , is the Characterising Tie. The Director for the second kind of fact, X was R to Y at t , may be called the Connexional Tie.

There is a fact when and only when one or more things are tied to one another.¹ A fact may be one thing tied to another by the characterising tie, *e.g.*, *This is red*. Then it is a One-Termed Fact. The characterising tie is a dyadic tie—it involves two things. A fact may be one thing and another (a relation) and another thing, tied by a connexional tie, *e.g.*, *This is on that*. Then it is a Two-Termed Fact. The tie in this case is triadic. A fact may be one thing and another thing and yet another thing and a relation, tied by a connexional tie. Then it is a Triadic Fact. The tie in this case is tetradic. A fact may be . . . and so on.

The Elements in a fact are the things which are tied. The Constituent of a one-termed fact is the thing which is characterised. A many-termed fact always contains an element which is a relation, and the Constituents of a many-termed fact are those things between which the relation may be said to hold. The Components of a fact are those elements which are not constituents.

We shall speak of the elements, constituents and components of series, such as the series of your ancestors; of systems, such as your family; and of sentences.

The word 'sentence' will be used in a peculiar way throughout this paper. In ordinary language if I write on one piece of paper "This is red" and on another piece of paper "This is red" I am writing the same sentence twice. This is because in the ordinary use of language a sentence is not one particular series of inter-related marks rather than another, but (roughly)

¹ Bradley's argument—the one which is usually called his argument against relations—has brought out the fact that we cannot analyse what is meant by saying of one thing that it is united or tied to another. We can only point to cases of one thing's being united to another. We may express this by saying that the conception of unitedness is ultimate. I cannot tell you what is meant by saying of one thing that it is united to another. I can only point to what is meant.

It is a mistake to express this by saying that there is "in every fact something which eludes analysis". For (1) unitedness is not *in* a fact. (2) We are not hunting its analysis, therefore it doesn't elude us.

a class of all those series of inter-related marks which are similar to a given series. Thus the sentence "This is red" is all series of marks similar to the series "This is red," written here. Now 'sentence' is so used in this paper that if I write the same sentence twice I write two sentences. The two series of marks which are the results of my two acts of writing are two sentences. A sentence (ordinary use) is a logical construction out of sentences (in this paper's use).

This point Ramsey has made clear, see MIND, N.S., vol. xxxii., p. 468.

Strictly, of course, even if we use 'sentence' in the way just pointed out, we cannot say that a sentence is a fact—not even the fact that certain marks are related in such and such a way. And neither systems, my family, nor series, the Kings of England, are facts. Still, because of the peculiarly intimate relation which holds between a sentence and the fact that the marks which make it up are arranged in the way they are, and between a series and the fact that its terms are arranged in the way they are, and between a system and the fact that its elements are arranged in the way they are, I shall insist on saying that they are all unities and that facts are too. Facts, sentences, series and systems all have internal structure. A family is not merely a set of people—it is the inter-relationship of a set of people. A sentence is not merely a set of marks—it is the inter-relationship of a set of marks. Further, facts, sentences, series and systems all have ties.

But not in exactly the same sense. For it will turn out that a fact is not grammatically of the same type as a sentence or a system. This means that what is said of the one can never be correctly said *in the same sense* of the other. Consequently they are not unities in the same sense. Consequently, if later I were to define what is meant by saying of two unities that they are identical in structure, the definition would not apply in exactly the same sense to facts, sentences and systems. A separate definition would strictly be required for each. It will be best at present to manage in the following way. A sentence, in the sense in which I said I was going to use it, was a particular occurrence—a noise, or a scratch on paper. Now whenever there is a sentence in this sense there is a fact which is related to it in a peculiarly intimate way—the fact namely that the elements of the occurrence are arranged in the way they are. Let us, till further notice, mean by a sentence such a fact as that.

IV. WITTGENSTEIN AND PICTURING.

I shall now try to point out what I mean by sketching, with the help of what Mr. Wittgenstein has done to point out the very similar relation of *picturing*.¹

Mr. Wittgenstein writes :—

4-01. "The sentence is a picture of reality. The sentence is a model of the reality as we think it is."

4-011. "At the first glance the sentence—say as it stands printed on paper—does not seem to be a picture of the reality of which it treats. But nor does the musical score appear at first sight to be a picture of a musical piece; nor does our phonetic spelling (letters) seem to be a picture of our spoken language. And yet these symbolisms prove to be pictures—even in the ordinary sense of the word—of what they represent."

4-012. "It is obvious that we perceive a sentence of the form aRb as a picture. Here the sign is obviously a likeness of the signified." (Compare also 'Q x Q' in chess.)

4-014. "The gramophone record, the musical thought, the score, the waves of sound, all stand to one another in that pictorial internal relation, which holds between language and the world. To all of them the logical structure is common."

4-016. "In order to understand the essence of the sentence, consider hieroglyphic writing, which pictures the facts it describes."

2-14. "The picture consists in the fact that its elements are combined with one another in a definite way."

2-15. "That the elements of the picture are combined with one another in a definite way, represents that the things are so combined with one another."

This connexion of the elements of the picture is called its structure."

2-131. "The elements of the picture stand, in the picture, for the objects."

4-04. "In the sentence there must be exactly as many things distinguishable as there are in the state of affairs, which it represents."

¹ I put the word 'sentence' where the translation of *Tractatus Logico-Philosophicus* puts 'proposition'. It is quite possible that Mr. Wittgenstein would not accept my translation 'sentence'. My description of what I mean by 'sketching' must therefore run "the relation which *would* be similar to Mr. Wittgenstein's picturing if he accepted 'sentence'".

3-2. "In sentences thoughts can be so expressed that to the objects of the thoughts correspond the elements of the sentence."

3-201. "These elements [of sentences] I call simple signs."

3-202. "The simple signs employed in sentences are called names."

3-203. "The name means the object. The object is its meaning."

According to Wittgenstein, then, a sentence, if it is to picture a fact or state of affairs, must have elements such that a one to one correspondence holds between the elements of the sentence and the elements of the fact.

But besides naming the objects and relations which are elements in the fact, it must show what it can never say, namely the logical form of the fact. Thus to quote Wittgenstein :—

4-025. "The translation of one language into another is not a process of translating each sentence of the one into a sentence of the other, but only the constituent parts of sentences are translated."

4-121. "Sentences cannot represent the logical form : this mirrors itself in the sentences."

4-022. "The sentence *shows* how things stand, *if* it is true."

We gather that when a sentence pictures a fact, then (1) elements in the sentence name elements in the fact : for each element in the fact there is an element in the sentence which is its name and *vice versa*, and (2) the sentence shows the form of the fact.

When a mirror mirrors a scene, then (1) for each coloured patch in the reflexion there is a coloured patch in the scene, and *vice versa*, and (2) the form of the scene is also the form of the reflexion—if the coloured patches in the scene run red, green, blue then the coloured patches in the reflexion run red, green, blue—in the same order (though the other way round). And even if the mirror distorts there will still be these two facts about the relation between the reflexion and the scene. Similarly, if we translate our English into French there will still be these two facts about the relation between the sentence and the case.

I try to give a more definite description of the meaning of 'to picture' by comments on what Wittgenstein says.

Wittgenstein says that sentences picture facts. But hardly any, if any, sentences in any ordinary language do picture facts. Wittgenstein does not want to assert that they do. He is trying to point out an ideal to which some sentences try to attain. He should, I think, have drawn our attention to the fact that some sentences do not try to attain to this ideal. If we consider (1) in what respects those sentences which do try to attain to this ideal

fall short of it, and (2) in what respects those sentences which do not try to attain to this ideal differ from those which do, we shall see the ideal more clearly.

Suppose I see a red patch and utter to myself the sentence of which many of us have had such high hopes—"This is red". Even this sentence fails in at least one respect, and perhaps in three or more, to attain to the ideal—to picture a fact. For the sentence contains three elements, "This," "is", "red", while the first fact contains two—what is named by "This" and what is named by "red"—or better, something or other which is characterised and something or other which characterises. It is true that the fact is not merely two things, this and red. It has a logical arrangement. But the arrangement is not an element in it. A house is not a set of bricks. It has an arrangement—spatial. But the arrangement is not part of what it is made of.

It is clear that with suitable conventions we could write instead of "This is red", "(This) red". And that would be an improvement. Because 'is' is a mark more like 'This' and 'red' than is ' () '. And this unlikeness in look keeps one in mind of its unlikeness of function. It is clear that with suitable conventions we could write instead of "This is red", "This red". Here we rely not on brackets round 'This', much less on an extra word such as 'is', but on the spatial arrangement of the marks to show the logical arrangement of the elements in the fact. If we had the suitable conventions and did write "This red" in the way suggested we should have a sentence which pictured a fact—provided two things which I fear may be so are not so. I fear that "This is red" may always mean "This has some determinate shade which is a shade of red".¹ Let us, however, suppose that I use "is red" not to mean "has some shade which is a shade of red" but to mean some perfectly determinate shade.

I have a similar fear about 'This'. If I speak not to myself but to someone else and say "This is red" I use "This" as meaning something like "The thing to which I am pointing".² It is to be hoped that sometimes when I talk to myself I use it to mean something. My last sentence is not a joke. I do not mean by it that it is to be hoped that I use 'This' as I use 'something'. Nor that it is to be hoped that I am not always talking nonsense when I begin a sentence with 'This'. It means

¹ See Moore, *Proc. Arist. Soc.*, supplement, vol. iii., pp. 99 ff.; and supplement, vol. vii., pp. 171 ff.; and Langford, *MIND*, Oct., 1929, p. 436 ff.

² I do not feel sure of this.

that it is to be hoped that sometimes there is something such that I am using 'this' as a name for it.

To sum up. If we write instead of "This is red" "This red" and 'red' names a shade and 'This' names the something which is of that shade, then "This red" as so used would picture a fact.

If instead of "This is bigger than that" we write "This bigger than", and 'bigger' names a relation and does not mean 'some relation which is a species of bigger', and 'this' and 'that' are names, we again have a sentence which pictures a fact.

But now take a sentence which does not try to picture a fact. Take "The son of the brother of the mother of the boy kissed the girl with almond eyes". This sentence does not picture a fact. The sentence "This is the son of the brother of the mother of the boy, and this kissed the girl with almond eyes" more nearly pictures a fact. And the sentence "This is the son of that, and that is the brother of the mother of the boy, and etc." still more nearly. Owing to the paucity in language of words like 'this' and 'that' we must now invent new ones—'thet', 'thot' and 'thit'—and proceed as follows: "This is the son of that, and that is the brother of thet, and thet is the mother of the boy, and this kissed the girl with almond eyes". Next: "This is the son of that, and that is the brother of thet, and thet is the mother of thot, and thot is a boy, and this kissed the girl with almond eyes". Lastly, we have "This is the son of that, and that is the brother of thet, and thet is the mother of thot, and thot is a boy, and this kissed Sylvia". This sentence very nearly pictures a fact.

And if we eliminate words which merely emphasise spatial order and write "This son that, and that brother thet, and thet mother thot, and thot boy, and this kissed Sylvia" we have a sentence which pictures a fact.

Each sentence we have considered we altered till it was "identical in form with" some fact. Then it pictured the fact. Identity in form is the first condition of picturing. We shall find that it is not the last.

If a sentence is to picture a fact, then it must be related to that fact rather in the way in which a picture is related to what it is a picture of and a reflexion to what it is a reflexion of. The sentence must be identical in structure with the fact it pictures. But, of course, a sentence even in our extraordinary sense is not a picture, much less a reflexion,¹ in the ordinary

¹ Mr. Wittgenstein does not say that a sentence is a reflexion.

sense of 'picture'. Apart from the more obvious objections to such a view the following should be noted: (1) A sentence is not identical in structure with the fact it expresses in the sense in which a reflexion, a picture, a diagram or a map is identical in structure with what it reflects, pictures, represents, or maps. A paragraph or account of a state of affairs is identical in structure in this sense with the state of affairs of which it is an account. A sentence is not like a map, but like one of the facts which make up a map,¹ such as that this dot is above that. This fact is of the same form as the fact about the inter-relationship of two towns which it is used to represent. (2) A sentence is not *usually* identical in form with the fact it expresses but only with something at a different logical level. "This red" is identical in form not with the fact expressed by "This red" but with the fact expressed by "This characterised (by) red". (3) The elements of a reflexion are patches and the elements of a scene are patches. They are of the same order. The elements of sentences are marks (patches, unities), but the elements of the facts they try to picture are often not unities but particulars and universals, and therefore of a different order. (4) The elements of the scene which are reflected in the reflexion are not the ultimate elements of that scene. For a patch has elements—its shade and the particular which has that shade.² (5) A sentence requires a speaker. A picture, it is true, requires an artist, and a diagram a draughtsman. In this they are more like a sentence than a reflexion is. And though the use of dots in a diagram and splotches in a picture is not quite that of words in a sentence, yet the uses are very similar, and with a little leniency we may count objection (5) only against the view that a sentence is a reflexion. Let us now consider these points.

V. IDENTITY OF FORM.

First as to identity of logical form.³ Even the best sentences are identical in form with a fact in only a rather unexciting way—not like a map and a country. A sentence is identical in form with a fact if and only if they contain the same number of elements. This entails that if the one has an n -adic component the other has, and that if one has an n -adic tie the other has. In

¹ Of course, a map is *not* made up of facts. To say it is is bad grammar. It is a logical construction out of facts.

² See R. F. A. Hoernlé, "Concerning Universals," *MIND*, April, 1927, p. 202; and Broad, *The Mind and its Place in Nature*, pp. 48 and 588.

³ Susan Stebbing, *Modern Introduction to Logic*, pp. 51-53.

this sense a one-termed fact is identical in form with any other one-termed fact, and not with anything else. And *n*-termed facts are identical in form only with *n*-termed facts. Thus *George hates Geoffrey* is identical in form with *Amelia loves Annabel*, with *The Earth attracts the moon*, and with, among other two-termed facts, the fact that a certain mark is next another, e.g., 'George' next 'Geoffrey'. On the other hand, it is not identical in form with the three-termed fact *The moon is between the earth and the sun*. *George stuck a knife in Geoffrey* is identical in form with *The moon is between the earth and the sun*. And the fact that 'This' is next 'red', as it is if I write "This red", is identical in structure with *George hates Geoffrey* and with *Selfridge's is in Oxford St.*, and with, among other two-termed facts, the fact *This is characterised by red*. And the fact that 'hates' is between 'George' and 'Geoffrey', as it is if I write "George hates Geoffrey", is identical in form with the fact that the relation *hates* is between (in a new non-spatial sense of 'between' in which it stands for the connexional tie) George and Geoffrey. Thus the sentence "George hates Geoffrey" is identical in form not with the fact *George hates Geoffrey* but with *George is connected by hates to Geoffrey*. I call this last fact the First Derivative of *George hates Geoffrey*.

VI. EQUALITY OF LEVEL.

So we come to our second point—that a sentence is usually of a different logical level from that of the fact it pictures.

Supposing I am a gunman and wish to convey quietly to you the news that I have murdered Al Capone. On the table I place a glass, a dish and a knife. I place them in this order—(1) glass, (2) knife, (3) dish. I do this instead of placing marks like (1) "I" (2) "murdered" and (3) "Capone" in that order on a piece of paper. There is a temptation to say that the first "sentence", the crockery arrangement, and the second sentence, the arrangement of marks, are identical in form with the fact they both express. But they are not; as will be seen if we compare them with two better sentences. Supposing I merely place a glass on a dish or the mark "I" next "Capone".¹ These two "sentences" are identical in form with the fact they express; in these two sentences the components, viz., *on* and *next* correspond to the component, viz., the relation *murdered*, of the fact they express. In the first two sentences their *constituents*, viz., the knife and "murdered," correspond to the *component* of the fact

¹ As Mr. Mace says, "Like a puzzle picture".

they express. These two facts, the first two sentences, are not, therefore, identical in form with the fact which they express; they are, however, identical in form with what I call its First Derivative.

What is meant by saying of one fact that it is identical in form with the First Derivative of another? Suppose we have a fact *George hates Anne*. Then there is another fact, *George is a referent*¹ of *hates*, and *Anne is a relatum of hates*. This second fact is the First Derivative of the first. Symbolically, if we have $(xy)R$ then we have $(xR)r_1$ and $(Ry)r_2$. "F is the First Derivative of F¹" means "The components of F¹ are the constituents of F and the ties of F¹ are the components of F".

No ordinary sentence attempts to do more than be identical in structure with the first derivative of the fact it expresses—for all ordinary sentences differ from the glass on the dish in that they contain a word, and thus a constituent, corresponding to the component of the fact they express. Even if we write "This red" instead of "This is red" we have a sentence which is identical in structure not with the fact it expresses but with that fact's first derivative. On the other hand, if I introduce a convention so that I write "This that" instead of "This on that" I get a sentence identical in form with the fact it expresses; for the component *next* of my "This that" sentence corresponds to the component of the fact. It is clear, therefore, that in this respect relational sentences are in a better case than predicational² sentences. We may now write down—If a fact is to picture a fact it must be identical in form with that fact or its first derivative.

VII. NAMING AND SHOWING.

More than this is required. We must deal with our fifth point—the necessity of an artist. Just as an arrangement of splotches of paint on earth might by chance be identical in structure with a scene in heaven without being a picture of it, so might an arrangement of marks happen to be identical in structure with a fact without picturing it. Just as we require someone to make the splotches with intent to paint the scene, so we require someone to make the marks with intent to express the fact. A sentence requires a speaker. We may now write down: If a fact, F, is to picture a fact F¹, then (1) F must be

¹ In A has R to B , A is referent and B is relatum.

² Relational sentences are sentences expressing many-termed facts. Df. Predicational sentences are those expressing one-termed facts. Df.

identical in form with F^1 or with its first derivative, and (2) someone must be using F to express F^1 .¹

Now when one fact, F , is identical in form with another, F^1 , or its first derivative, and is used by a speaker to express F^1 , then a selection from a certain set of triadic relations is liable to hold between the elements and ties of F , the speaker, and the elements and ties of F^1 . These relations cannot hold unless F is identical in form with F^1 or its first derivative. It is in terms of these relations that we must define *picturing*.

Which selection from these relations shall hold between F , a speaker, and F^1 , depends upon whether F is (a) identical in form with F^1 or (b) with its first derivative. Suppose you express F^1 by F and (a) F is identical in form with F^1 , e.g., you put a glass on a dish to express the fact that I have killed Al Capone. Then (1) you use one constituent of F , viz. the glass, for one constituent of F^1 , viz. me, and the other constituent of F , viz. the dish, for the other constituent of F^1 , viz. Capone. This particular kind of "using" relation which holds between you and me and the glass I call Naming. Then (2) you use the component of F , viz. the relation *on*, for the component of F^1 , viz. the relation *killed*. I call this using of a component for a component Docketing, although it is very similar to naming. Then (3) you use the tying of the elements of F , viz. triadic tying, for the tying of the elements of F^1 , viz. triadic tying. This kind of using I call Identically-showing.² Suppose you express F^1 by F and (b) F is identical in form not with F^1 but with its first derivative, e.g., you put down first a glass then a knife and then a dish to express the fact that I have killed Capone. Then (1) you use one constituent of F , viz. the knife, for the component of F^1 , viz. killed. I call this using of a constituent for a component Labelling, although it is very similar to naming and docketing. Then (2) you again name the constituents of F^1 by constituents of F . Then (3) you use the relating of the constituents of F , viz. the triadic spatial relating, betweenness, for the tying of the elements of F^1 , viz. triadic tying. This kind of using I call Non-identically showing.³ It is here that we speak of the spatial arrangement of the constituents of the sentence showing the logical arrangement of the elements of the fact. The use of the tying (or relating) of the elements (or constituents) of F to show the tying of the elements of F^1 is markedly different from the use of the elements (or constituents) of F to name or docket or label the elements of

¹ Whenever these two conditions are fulfilled, F is a sketch of F^1 .

² It may also be called "formally showing".

³ It may also be called "materially showing".

F^1 . It is not that the tie (or component) of F is used to stand directly for the tie of F^1 , nor even merely that the n -adicness of the one indicates the n -adicness of the other. It is like this: The fact that F has the elements (or constituents) it has enables the hearer to know what elements F^1 has; and the fact that these elements (or constituents) of F are tied (or related) in the order they are tells the hearer in what order those elements of F^1 are tied. Thus, with one convention about what the order of the elements in a sentence tells, to put a glass on a dish tells the hearer that I have killed Al Capone, but with another convention, one according to which sentences were like mirror images, the hearer would learn from that sentence, the glass on the dish, that Al Capone had killed me—a very different thing.

These definitions are, of course, far from satisfactory. Even if they give the correct analyses of the five relations, the words in which those analyses are expressed are not unambiguous. The words "used for" are very dangerous. So I propose to supplement these analyses by descriptions of the relations. (1) *Names, labels, and docketts* are all species of one relation, *used by someone to stand directly for*, while *identically shows* and *non-identically shows* are both species of another relation *shows*. (2) *Showing* holds only when the sentence is identical in form with the fact it expresses. (3) Only the relating or tying of one thing to a second can show the relating or tying of a third thing to a fourth. And if the relation or tie which is shown is n -adic, then the relation or tie which is showing is n -adic. Only a *fact* can show the sense (or tying) of a fact. (A set of words cannot show the sense of a fact—only an arrangement of words can do this.) A fact can only *show* the sense of the fact it expresses.¹ It cannot state it.² (I think we might have a sentence which states the sense of a fact which it does not express. Thus

¹ Wittgenstein says, *Tractatus Logico-Philosophicus*, 4-022, "The sentence shows how things stand if it is true". And adds, mistakenly, it seems to me, "And it says that they do so stand".

² If I write a letter in haste I may either let the letter show my haste—by the scrawliness of the writing—or add a postscript stating my haste. But was I in haste when I wrote the postscript? This the postscript (so they say) cannot state. If I want to state that I was in haste when writing the postscript I must add a postscript to the postscript. Mr. Wittgenstein says (*Tractatus* 3-332) "No proposition can say anything about itself, because the propositional sign cannot be contained in itself (that is the 'whole theory of types')". To me it looks fishy. If I write "this is in haste" in a letter 'this' refers to all the writing on the note-paper. Of course a proposition cannot be a proposition *with regard to* itself, i.e., cannot be an element of itself.

"This is characterised by red" seems to state the sense of the fact which not it but "This is red" expresses.)¹ (4) The relation *showing* is triadic—it involves three terms—a sentence, a speaker, and a fact.

(5) *Standing directly for* is a triadic relation between a speaker, a constituent (or component in the case of docketing) of the sentence he utters and an element of the fact he expresses. Thus if I say "This on that" the relation holds between me and "this" and what I use "this" as a name for, and between me and "that" and what I use "that" as a name for. On the other hand, though if I say "The bay beat him" the descriptive phrase "the bay" may be said to stand for something—*viz.* the winning horse—yet the relation here expressed by "stand for" is tetradic and involves the four terms, me, the phrase 'the bay', the quality *bay*, and the horse to which the quality applies. It is therefore not the relation with which we are concerned. (6) This relation holds between an element of a sentence, an element of a fact, and a speaker, if and only if the sentence is identical in form with the fact it expresses (or its first derivative, of course). Thus each constituent of "That kissed Sylvia" (the sentence above) stands for an element in the fact it expresses. But no constituent of "the boy kissed the girl" stands for a constituent of the fact it expresses. (7) The relation has five determinates,² and which of these shall hold between a mark which is a constituent of a sentence and an element of the fact the sentence expresses is determined by (a) whether the sentence is (α) predicational, or (β) relational, and by (b) the place of the mark in the sentence, *i.e.* whether (α) the sentence being predicational the mark is first or last, and whether (β) the sentence being relational the mark is first, second or third. Thus suppose we have the predicational sentence "This is red" and the predicational sentence "Red is a quality" the use of red in these two sentences is somewhat different. Again, if I write "This overlaps that" and "That overlaps this" then I use 'this' in two rather different ways.³ And if I say "*Overlaps* is a determinate of *has some spatial relation*" I use 'overlaps' differently. We may then use a sign to stand directly for something in five ways. We may use it

¹ It will, however, be psychologically impossible to explain in language to someone who does not know how sense is shown in language, how sense is shown in language. Because without knowing this he will not understand the language of our explanation.

² Apart from docketing, which occurs when a component, not a constituent, stands for a component.

³ Consequently there are two slightly different uses of 'name'.

(i) in a predication sentence for the component ; (ii) in a relational sentence for the relation ; (iii) in a relational sentence for the relatum ; (iv) in a relational sentence for the referent ; (v) in a predication sentence for the constituent (or subject). (8) When a word is used in either of the last three ways it is called by Mr. Russell and Mr. Johnson a "proper name" or sometimes simply a "name". Miss Stebbing and Miss Whetnall would call it a demonstrative symbol. Mr. Johnson points out that "proper name" in this new sense is an ideal limit to which proper names in the ordinary sense of 'Jack' and 'Jill' approximate, while uniquely descriptive phrases such as "The boy who broke his crown" do not.¹ Miss Stebbing accepts Mr. Johnson's account, but prefers the word 'demonstrative symbol'. I cannot quote in full her description of the relation she expresses by 'is a demonstrative symbol for'. She says that a demonstrative symbol is a symbol which stands for an object with which we are directly acquainted and that it indicates an object without ascribing characteristics. She writes "A says: 'That Church is very large'. B replies: 'That is not a Church, it is the Pitt Press Buildings'. Here B is aware of the referent pointed to by A, but refuses to accept the description implicit in the phrase 'That Church' which A uses to indicate the referent. . . . If A now retorts, 'It looks like a church', here 'it' simply demonstrates"² I should accept this as a good account of what I mean by 'naming'. I shall call symbols which are used in any of the five ways mentioned above to stand directly for something Demonstrative.

If a fact (a sentence) F is to picture a fact, F^1 , then (1) it must be identical in form either (a) with F^1 or (b) with the first derivative of F^1 ; and (2) if (a) there must be someone who is using each constituent of F to name just one constituent of F^1 and is so naming *each* constituent of F^1 , and is using the component of F to docket the component of F^1 , and is showing the tying of the elements of F^1 by the tying of the elements of F , while if (b) there must be someone who is using a constituent of F to label a constituent of F^1 , and each other constituent of F to name just one constituent of F^1 , and is so naming *each* constituent of F^1 , and is showing the tying of the elements of F^1 by the relating (component) of the constituents of F .

Condition (2) entails condition (1). We may therefore eliminate the latter. We then have the definition of *sketch of*. That is to

¹ *Logic*, vol. i., p. 80.

² *A Modern Introduction to Logic*, p. 15, and Chap. iii.

say "F is a sketch of F^1 " means there is someone who is using F to express F^1 and using it either as indicated in (2a) above or as indicated in (2b) above.

Condition (2), though sufficient for *sketching*, is insufficient for *picturing* in Wittgenstein's sense. *Sketching* is adequate for the definition of logical constructions. What I say therefore, till page 216, since it is concerned with picturing, but not with sketching, is irrelevant to the definition of logical constructions and may be skipped. In my opinion it is, however, useful in causing one to become clear about logical constructions.

VIII. ORDER AND ULTIMACY.

So we come to our third and fourth points, namely—(a) that the sentence and the fact shall be of the same Order, and (b) that the fact shall be of the First Order, *i.e.*, such that its elements are its ultimate elements.

Suppose I am happy—then there is a fact and a unity. Suppose someone uses 'this' as a name for my happiness, and says "This is good". The sentence "This is good" as so used does not picture a fact because its constituents do not label the "ultimate elements" of a fact. The "ultimate elements" of *This is good* include me and the predicate *happy*. Now these are not elements of the fact *This is good* in the sense we have been using 'elements'. They are elements only in the sense that they are elements of an element in our sense. Let us use the expression 'factor' to mean 'either an element or an element of an element or an element of an element of an element or etc.'. We may now pursue our inquiry in the following language. "This is good" does not picture a fact because its constituents do not label the ultimate factors in a fact. What is meant by 'the ultimate factors in a fact'? It may be suggested that the ultimate factors in a fact are the factors which are simple or have no parts (in the widest sense of part). But this is a mistake. Remember our improved sentence "This red". The elements of this sentence as improved by us stand directly for ultimate factors in a fact. But it is quite uncertain whether the particular for which 'This' is a demonstrative symbol has parts or not—it may have an infinite number of parts. McTaggart's theory of the infinite divisibility of substance is not incompatible with the theory of atomic facts. On the other hand, though what 'this' names may have parts, the parts must be all of the same logical type, and if what 'this' names is a particular then all the parts must be particulars. This is because to say of a factor that it is

ultimate is to say of it that it is a block, and not a unity or construct. To say of a factor that it is ultimate is not to say that it has no parts but it is to say that it has no elements. A particular is not a unity, nor is a perfectly determinate shade of red—they may have parts but they have no elements. They are homogeneous wholes—they are blocks.

If we attempted to tell of the structure of the world and made a list of sentences of the form "This is P" where 'This' named a unity as in "This is good", much about the structure of the world would have been left unsaid.¹ For if each *this* were a unity each would have a structure. And about this structure nothing would have been said.

I have defined the ultimate factors of a fact as those factors which are not unities. But I have never made clear what is meant by "unity". You do not know what is meant by the expression "elements of a unity" because it is grammatically polygamous. We may say, without talking nonsense: (1) "A fact is a unity"; (2) "An event is a unity"; (3) "A society is a unity"; (4) "A machine is a unity". "Fact", "event", "society" and "machine" are words of different grammatical levels. Consequently there are four uses of 'unity', each of a different grammatical level, and there are of course as many uses of 'element' as there are of 'unity'. To avoid a grammatical lapse we must adopt one and only one of the uses of 'unity' and 'element'. One is tempted to define the ultimate factors in a fact as those which are not unities at any grammatical level. But the conception of a grammatical level can be defined only in terms of logical constructions. Now the conception of an ultimate factor does not involve that of logical constructions in its analysis. Consequently, though it is true of every ultimate factor in a fact that it is not a unity at any grammatical level we must not *define* ultimate factor that way. We must proceed as follows:—

Take the use of 'element' in which what 'This' names and 'red' labels are elements in the fact expressed by "This red",² and use 'element' in that way *throughout* these definitions.

¹ I define the Naturalistic Fallacy thus—Let α be the set of possible atomic facts. Let π be the set of components of members of α . Then "Henry is committing the Naturalistic Fallacy" means "Henry is either asserting that good is or contains a member of π , or is asserting that good is p , where p in point of fact either is or contains a member of π ".

² If we have a sentence "SP" we can be sure that S is an element of the fact expressed by "SP" only if we know that "SP" sketches the fact it expresses.

Then we have: (1) the Factors of a fact are the elements of the fact and the elements of the elements of the fact and the elements of the elements of the elements of the fact, and so on. (2) The Ultimate factors of a fact are those factors of the fact which have no elements. (3) A First Order Fact is a fact the elements of which have no elements. (They are therefore also its ultimate factors.) (4) A Second Order Fact is a fact the elements of the elements of which have no elements. (5) An n -Order Fact is a fact the elements of the elements of the elements (and so on $n-1$ times) of which have no elements. (6) Two facts are Equiordinal if they are both of order n .

Since the only things which can have elements in the sense required are facts we can make the following statements: (1) A fact is a First Order Fact if and only if it is a fact which is not about facts—or, more strictly, no element of which is a fact. (2) A fact is a Second Order Fact if and only if it is about first order facts—or, more strictly, has an element which is a first order fact. (3) A fact is of Order- n if it is about a fact of order $n-1$. (4) Two facts are Equiordinal if they are both of order n .

Here I must anticipate an objection which might be urged against these definitions. It might be said—"Consider the fact expressed by 'This adjoins that' where 'This' and 'that' do not name particulars, as 'This' does in 'This red', but patches. Here, then, what 'this' names is a patch. Now you yourself have admitted that a patch is a unity, and have claimed that such a fact as is expressed by 'This adjoins that' is not a first order fact (see p. 205 (3)) but a second order fact. But a patch is not a fact and therefore has not elements in the sense in which a fact has elements. A fact about a patch, therefore, is not about a fact and not about something which has elements in the sense of 'has elements' in terms of which you defined first order facts. Such a fact therefore on your definitions is not a second order fact but is a first order fact."

With the logical equipment at present to hand, I cannot explain clearly the mistake involved in this argument. I shall, however, deny here two of its premisses. (1) The patch is not, in the strict sense of element, described above, an element in the fact expressed by "This adjoins that".¹ And *This adjoins that* is not about the patch in the sense of 'about' used in the definitions above and is about a fact—the fact expressed by "This black" (here 'This' is used to name a particular and is therefore

¹ "This adjoins that" does not strictly sketch a fact unless we either (1) use 'This' to name a fact (not a patch), or (2) use 'This' to name a particular (not a patch).

not used as it is in "This adjoins that"). It is not necessary, therefore, for me to hold that it is of the first order, even if a patch has not elements. It is true that "This adjoins that" *apparently* expresses a fact about a patch and there is a sense of 'about' in which this fact can correctly be said to be 'about a patch'. Nevertheless, "This adjoins that" *really* expresses a fact about a fact.¹ We may say that the fact *This adjoins that* is about a patch but is "really about" a fact. Now, "really about" is what means what was meant by 'about' in the definitions. Compare here—*England declared war* is about England but is "really about" Englishmen, although we must not translate "England declared war" by "Englishmen declared war"—remember the llama. I cannot analyse the distinction between *about* and *really about* until I have analysed the meaning of 'logical construction'. (2) It is not true that the patch "has no elements" in the sense those words have in the definitions. It is true that to say of a patch "This has elements", using 'has elements' as we do of facts, would not express a true proposition, since it would not express one at all, *i.e.*, be nonsense. But it is also true that to say of a patch 'This has not elements', using 'has not elements' as we do of the elements of *This red*, does not express a true proposition, since it does not express one at all. It is not true, therefore, that according to the definitions above I must say that *This adjoins that* is a first order fact. For a first order fact must be defined as follows: Let F be a first order fact and E be one of its elements. Then "E has elements" must express a false proposition.² A first order fact must not be defined as follows: Let F be a first order fact and E be one of its elements. Then "E has elements" must not express a true proposition, *i.e.*, must express a false one *or* not express one at all.

The analysis of first order facts is not in terms of logical constructions. Thus this analysis is not logically dependent upon logical constructions. But it is difficult to understand the words used to express this analysis clearly enough to be able to tell of what order a given fact is until the words 'logical construction' are understood. Thus, the understanding of the statement of the analyses is psychologically dependent upon logical constructions.

We may say, if we like, that a fact is of the n th order if it is either really and apparently about facts of order $n-1$, or really about facts of order $n-1$, but apparently about something else

¹ And really, really, expresses an event about an event.

² Better: Then "E has not elements" must express a true proposition.

which is "equivalent to but not identical with" facts of order $n-1$. We may say, if we like, that a fact is of order n if its elements are unities, at some grammatical level, *i.e.*, in some logical language, of order $n-1$. But these statements, though true, do not give the analysis of *fact of order n* . And these statements will not be properly understood by one who does not understand 'logical constructions'. This does not matter (even psychologically) because to understand 'logical construction' it is necessary to understand only 'sketching'—not 'picturing.'

CONCLUSION.

To sum up: (1) Two facts F and F^1 may or may not be of the same form or equitermed. (2) F and F^1 , even if equitermed, may or may not be equilevel. (3) F and F^1 , even if equitermed and equilevel, may or may not be equiordinal. (4) F and F^1 , even if equitermed, equilevel, and equiordinal, may or may not be of the first order.

" F is a sketch of F^1 " means "There is someone who is naming each constituent of F^1 by a constituent of F , and is either (α) showing the tying of the elements of F^1 by the tying of the elements of F and docketing the component of F^1 by the component of F , or (β) showing the tying of the elements of F^1 by the relating of the elements of F and labelling the components of F^1 by a constituent of F ".

" F is a sketch of F^1 " entails that F is equitermed either with F^1 (if alternative (α) is realised) or with the first derivative of F^1 (if alternative (β) is realised).

And when anyone uses a fact F , which is identical in form with another, F^1 , or the first derivative of F^1 , to express F^1 , then F is a sketch of F^1 .

To deal with lies and mistakes a slight modification is necessary. " F (a sentence) is a sketch" means "If the speaker of F is speaking truly then there is a fact F^1 such that the speaker of F is naming each constituent of F^1 , etc".

" F is an outline of F^1 " means " F is a sketch of F^1 and the elements of F^1 are not its ultimate factors", *e.g.*, "This is good" outlines a fact.

" F is a picture of F^1 " means " F is a sketch of F^1 and the elements of F^1 are its ultimate factors".

" F is a perfect picture of F^1 " means "The elements of F^1 are its ultimate factors and F and F^1 are equitermed, equilevel and equiordinal".

(To be concluded.)

V.—DISCUSSIONS.

IS PERCEPTION DIRECT, OR REPRESENTATIVE ?

THIS is the crucial question in regard to perception. The ordinary man thinks he perceives things directly. If he does not perceive them directly, he cannot think of them directly ; he would be obliged to say, when he thinks of sunrise to-morrow, that what is present to his mind is an image, which in some mysterious way represents the future sunrise ; but that his mind can never be in direct relation to that event itself. This would be unfortunate. It is highly desirable, therefore, that philosophy should confirm the plain man's view that he perceives things directly.

The difficulty of doing so results from the fact that the external thing is perceived in the form of a sense-datum, the character of which is determined immediately by the sensory impression on the organism and our reaction to it, and only indirectly by the character of the external thing itself.

The question is thus as to the exact relation, in perception, between the sense-datum and the external thing.

The answer I shall give seems to me to come as near as it is possible to come to bridging the gap between neo-realism and critical realism. In any case, it is in my opinion the only answer permitted by the facts.

This answer is, that the sense-datum is representative, but that perception by means of the sense-datum is direct. We directly apprehend the real thing, and nothing else ; its characters and also its existence.

I.

The student of perception must never weary of improving his theory ; and reflection on mine¹ has led me to modify it slightly at a number of points. I can best explain these modifications by asking four questions, and giving my present answers to them.

1. *Of what nature is the sense-datum ?*—I used to regard the sense-datum as an "essence" or universal ; but I have changed my mind about this. I now think that it is a particular, occurring

¹As stated in *Essays on the Natural Origin of the Mind* (1930), especially in the Introduction and the essay, "On the Relation of the Apparent to the Real."

only when it is intuited ; that it depends for its temporary being on the intuition of it, and therefore does not exist independently or continuously ; that, though not in space and time in the sense in which a real thing is in space and time, it is yet bound down to certain places and times ; that it is a *phantasm* or *apparent*, generated by the activity of the self, and which it is the business of psychology to explain.

2. *Does the sense-datum show only the character of the thing, or also its existence ?*—The view that the sense-datum is an "essence" or "eternal object" implies that it shows only the character of the thing. But, if it has temporary being, this being can show also (or be taken as showing) the thing's existence. The naïve percipient so takes it : the being of the sense-datum *is*, for him, the existence of the thing ; and it is certainly a first-rate sign of the thing's existence.

But the sense-datum, being only an apparent, cannot show the *real* existence of the thing ; it can only show its *apparent* existence.

I shall use the word "existence" henceforth for the real existence.

3. *What is "intent" ? Is it conscious ?*—Intent is, on its physical side, the muscular adjustment by which we attend to the object seen or touched, and without which we should not receive the requisite sensations. We must look in order to see, use the hands in order to touch.

Intent is conscious in one sense, and not in another. It is not a purely physical reaction, without feeling ; for, in looking at an object, we have kinæsthetic sensations which report the reaction of looking. It is *not* conscious in the sense of not being deliberate, or consciously willed. We can intend a real thing without being conscious that we intend it.

Intent is *instinctive*. The new-born babe never touches the breast without using its fingers, never gets visual sensations without beginning to use its eye-muscles and looking towards the thing from which the sensations come. This instinctive reaction of looking singles out the thing from others, as that with which his vision has to do. It is like a finger pointing in the direction of one single thing.

Now the light-rays bring only the description of the object—they do not bring the thing itself. The thing as an existent remains separate from the babe's existence, however intently he looks. The existence of things, accordingly, can only be *indicated*—it cannot be drawn into the being of the percipient, or got at in any other way. It is exclusively a datum of (a thing made present to the mind by) action. Hume might have stated his philosophical result without scepticism, had he said : "Of course I believe in the existence of real things as much as any one, but I have shown (1) that you cannot intuit anything but images, (2) that you cannot pass by reasoning from these to real existents beyond ; wherefore you can only arrive at them in practice and with 'animal faith', as I do when I eat and drink or when I look at a table with the full confidence that it is really there."

4. *Why is animal faith necessary?*—When you point at an object and unambiguously indicate it, but cannot get any closer to its existence (except, in the case of food, by swallowing it), instinctive trust in its existence is necessary, unless you are to be left with only images. Secondly, *if* you take its existence on trust, and bring the image into the relation to it which it actually has in perception, the image becomes a *presentment*, describing the real thing for you; and again, animal faith is requisite, if you are not to doubt the knowableness of real things and resign yourself to agnosticism.

Such (according to my theory) are the terms of the problem; and we can now proceed to consider whether, in these conditions, perception is direct or representative.

II.

The first thing we have to realise is that intuition and intent always occur together. You cannot intuit (in perception at least) unless you begin by intending. Muscular adjustment to the real thing is necessary to the sensations arising. They come, when exteriorised so as to form the sense-datum, as reports or presentments, meaningless unless there were a real thing to be reported or presented.

Now intent, at least, is direct. It is a relation in the real world between the self and the thing. Nothing could be more direct than the relation of a pointing finger, or of an adjusted camera, to the object at which it is pointed. A more exact analogy is that of the relation of a cinema lantern to the image it projects on the screen. Precisely by this pointing and focussing, the clear image—in our case, the sense-datum—is produced.

In perception the sense-datum is projected, not on a screen, but on the external thing, each part of the sense-datum being accurately placed on the corresponding part of the thing, so as to clothe it. The sense-datum and the thing are (or must be supposed to be) an exact fit. Thus the presentment is, for the subject's awareness, where the thing is.

Now we come to the main point. *The naïve percipient takes the sense-datum for the thing; its being for the thing's existence, and its characters for the thing's characters.* They are not identical (for, as we have seen, they are independent in their being), but he identifies them—not consciously, as if he had the two things before his mind, but instinctively. *In this instinctive identification perception consists.* Without it, he would not perceive the thing, but only intuit the sense-datum.

Suppose a child, who had had no experience of cinemas, were taken to one for the first time; and that behind the screen there were persons exactly like those shown on the screen, and doing exactly the same things. This child might imagine he saw the real performance. But he *would* be seeing it! If one performer stabbed another drawing blood, and the child ran and told the

police, he would not be wrong. This I take to be the exact situation in perception; and the upshot is, that, though sense-datum and real thing are not identical but their relation is one of representation, perception is nevertheless direct. And this is what it must be, if perception is to yield knowledge.

III.

But we have yet to deal with the sceptic. You admit, he will say, that we intuit only sense-data, and that the validity of perception depends on their presumed identity with—no, their presumed exact likeness to—real things which you can never intuit. What security have you that these two really are exactly alike? You have none.

The sceptic is too forward with his doubt.

The question cannot be adequately treated without considering the nature of the self and the mode in which sense-data originate. I presuppose (1) that the self is a part of Nature, having the constitution which we find it to have in introspection; (2) that sense-data come into being by our using states of the self—that is, sensations—as signs of external things. The sense-datum is thus not an entity wholly alien in its nature to the things it is called on to depict. Though phantasmal, it is a phantasm produced by confusing and misplacing states that are real—much as the image thrown by the cinema lantern is produced by enlarging and projecting the photographs on the film.

In this simile, the lantern with its inner light corresponds to the self; the light-rays that project the image, to intuition; the image on the screen, to the sense-datum; and the adjustment of the instrument so as to throw the image on the screen, to intent. Now there is no defect in arguing, in the case of the lantern, that projection of the photographs on the film may produce a true image of real events (and even, thinkably, of events and persons behind the screen), and that the nature of things must be such as to account naturally for the lantern with its inner light—for these are all things in the same world. There is therefore no defect in arguing, in the case of perception, that sense-data may truly present the real and that Nature must be such as to account naturally for consciousness.

Thus it is the natural origin of the mind that proves the validity of cognition. The hand I stretch out, the eyes I direct, the "I" that vivifies the brain and uses these instruments, are parts of the same world which I am seeking to cognise. Only animal faith or instinctive trust is necessary to the recognition of this. Without it we are all perforce sceptics.

C. A. STRONG.

VI.—CRITICAL NOTICES.

The Revolt Against Dualism: An Inquiry Concerning the Existence of Ideas. By A. O. LOVEJOY. London: George Allen & Unwin, Ltd., 1930. Pp. xii + 325. 15s.

PROF. LOVEJOY in this work deals with a problem central to theory of knowledge. Do we in knowing 'use ideas' and, if we do, what function does the 'idea' fulfil in the knowing, and what kind of existence does it itself possess? The answer of Seventeenth Century Philosophy to these questions—that it is the function of the 'idea' more or less accurately to represent the physical real 'outside', and that an idea exists as an entity 'in the mind'—established two dualisms. On the one hand, there is what Lovejoy calls the 'epistemological' dualism of representations or 'ideas' (of which we are immediately aware) and 'real things outside' (known *through* the representations): on the other, a 'psycho-physical' dualism consisting of the physical world and the equally real mental world. Prof. Lovejoy asks himself whether these dualisms are still to be retained or whether the time has not come for their rejection by philosophy. In seeking to answer the question he finds it necessary to describe the growth of a revolt against both types of dualism in contemporary thought. A brilliant critical survey of that revolt leads him to the conclusion that the reflexions and criticisms of the last three decades do *not* justify us in rejecting either dualism if we wish to remain realist. On the contrary, the failure of the revolt causes him to reassert, firstly, that our knowledge of the external world can only occur indirectly, since we are in immediate contact only with 'ideas' in the Lockean sense; secondly, that such 'ideas' belong to a psychical world not identical in character with the physical. We must, consequently, either reassert the dualisms or be prepared to adopt an idealism. "If you are to believe in a real physical world, then you must necessarily be a dualist in both senses of the term: you must hold (a) that there are given in experience particular existents which are not parts of that world, and you must hold (b) that whatever knowledge of real objects you have is indirect or representative, that the datum whereby you know any such object is not identical with the object known" (p. 303).

Of the two dualisms it is the 'epistemological' that presents us with the most urgent problem. For the old familiar difficulties immediately return: Granted the dualism of 'ideas' and 'things',

and that we are directly aware of 'ideas' only, are we then ever justified in going beyond our 'ideas'? Is 'representative knowledge' of an otherwise unknown and unknowable external world at all possible? This is the fundamental problem of the book; though it is not squarely faced until the final chapter. But if this is the real problem, then a confusion present in the argument of the final chapter must immediately be corrected. Prof. Lovejoy slips into identifying 'representative' with 'mediate' (also 'indirect') knowledge. If this identification is allowed, it then follows that to deny all representative knowledge is at the same time to deny all mediate knowledge—obviously an absurd denial to make. But, surely, if representative knowledge ever does occur, it is at most merely *one* instance of mediate knowledge, and to deny it is not to deny all the other instances. We use the term 'mediate' loosely to describe, for example, both syllogising and knowing through a representation, but this makes it none the less possible for me to deny with perfect consistency the existence of the latter whilst affirming the former. Therefore, the question at issue is not one as to the possibility of mediate or indirect knowledge, as Lovejoy sometimes erroneously asserts. Our concern is with one particular kind of mediate knowledge, namely, a representative knowledge involving an epistemological dualism of 'idea' and 'thing'. To forget this fact is to invite confusion of thought.

Having made the real issue plain, we must now ask whether Prof. Lovejoy succeeds in proving the existence of such knowledge. He claims to have done so. Indeed, he claims that *all* our knowledge of the external world is of this kind. There is some doubt as to the character of 'pure self-awareness' (v. p. 316), but with this 'debatable exception' all knowledge is representative. The first difficulty that meets us, if we accept this view of knowing, is how, when we are confined to 'ideas' in our immediate experience, we ever come to think of real things outside. On pp. 267-268 Prof. Lovejoy suggests a new "starting-point of the argument for physical realism". We have no space here in which to consider his suggestion in detail, but can only say that we find in these pages no solution of the above difficulty. Certainly, when we expressly begin with an epistemological dualism the difficulty of explaining the first step out to the external world is, to say the least, a very real one. But supposing that, in some mysterious fashion, we have come to know that a real world exists beyond the immediate objects of awareness, how now are we to know anything further of that real world, if we still persist in holding that we are directly aware of 'ideas' only? Lovejoy's answer is that the 'ideas' must in certain respects be analogous to the real outside. They must be so, for we *do* know certain details of information about that real world, and we can only gain this information through our 'ideas'. To understand how this is possible we should turn first, he thinks, to memory, where 'representative' knowledge is seen at its best. What we know when we remember

is the past, but the past event we now know is no longer present. It is 'outside' and 'beyond' my present immediate experience. What is present, however, is a symbol in a pattern of dated events, the symbol standing for the past event known. Thus the remembered event is not present; none the less it is presented. "What his (the epistemological dualist's) thesis means, or should mean, is that at the moment when any man believes himself to be, *e.g.*, remembering, there is before him both a particular concrete datum—usually an image—and the conception of a mode of relatedness in which mutually external existences, including this datum, may stand to one another; and that the character of the datum either is ascribed to a locus (in that relational order) conceived as other than that in which it is actually given (other, namely, than the here-and-now locus), or is at least regarded as capable of presence in that other locus" (p. 312). This, then, is how 'representative' knowledge actually does occur. But can such a process as is here described, we must ask, give us knowledge of which we can continue to be convinced when in a reflective, critical and sceptical mood? On what grounds am I justified in ascribing the character of the datum to a locus other than its own locus? If I answer, because in my present conceived pattern or plan of sequences the symbol at the present place symbolises the event at the other place, how do I know, firstly, that the 'real' sequence is rightly portrayed in the sequence now conceived by me, secondly, that the real event I am trying to recall came just where the symbol is put in the conceived pattern, thirdly, that the present character is an adequate representation of the character not present? These questions are surely pertinent to the issue, and the account given of 'representative' knowledge in remembering cannot be deemed satisfactory until they are answered. Lovejoy proceeds to assert that man's knowledge of the external world is likewise 'representative' in exactly the same sense as is his knowledge in memory. "The something 'before his mind' by means of which he conceptually distinguishes the real object from his sense-datum, is an idea of a character (actually and certainly possessed by the datum) as existing in a place which—in one or the other of the two senses just distinguished—is not the perceptible position of that datum in his visual field" (p. 314). But again, the question inevitably arises, how does he justify himself in holding that there is a 'something before his mind', that is to say, in the immediate data, which is 'an idea of a character' existing in some place other than the immediate data? It may be so; but what proof is given? The moment I begin to reflect I cannot understand why an idea *should* symbolise or represent, even in part, what I can only possibly know, *ex hypothesi*, through such representation. "The being known of a thing", we are told, "is its getting reported where it does not exist" (p. 315). But what we are not told is how we are to know, firstly, that the report is really a report and not a mere pretence or illusion, and, secondly, that the report is correct. We hope

we are doing Prof. Lovejoy no injustice, but we can find but one half-hearted and wholly inadequate effort to answer these questions. On pp. 317-318 he admits the fundamental difficulty—though he does not set it forward in its most general form. In its widest form the difficulty is: How can we admit that anything immediately present in any way symbolises or represents what is not and cannot itself be immediately present? The difficulty which Prof. Lovejoy does admit is “that of discriminating, if possible, those features of the datum which can be taken as reporting characters possessed by the external existent at the locus of reference, and those which are to be taken as additions or modifications due to the cognitive event, or to other extraneous circumstances, and therefore as existing only at the locus of givenness” (p. 317). Having said this, he adds frankly: “There is no summary and purely logical way of complete escape from this embarrassment” (p. 317). All he can suggest is that once it is admitted “that *some* knowing of external existences occurs, that there are realities not now, not here, and not ourselves, which get reported to us here and now” (pp. 317-318), then we must *sometimes* be knowing the external existence indirectly through immediate data. But this, of course, is begging the whole question. Without being able to point at one character possessed by the present datum of which we can be completely certain that it is also possessed by the externally real (the other side of our dualism), we none the less are asked to assume that some such characters do exist, and that we can somehow pick them out from the other characters that are not repeated in the externally real. This miraculous power of selection on our part must be possessed by us, it is urged, if we are beings capable of knowing the external world.

The conclusion, we must admit, is inevitable if one begins with an epistemological dualism; yet it is like enough to a *reductio ad absurdum* to make us hesitate before accepting it. What are the other alternatives? We may accept an idealism, in which we deny the existence of a world independent of us as knowing it. Lovejoy, rightly we think, rejects this alternative as soon as it is put forward. On the other hand, we may hold that in knowing we are directly aware of our object and that we do not become aware of it indirectly through the mediation of an ‘idea’ or ‘ideas’. “But this epistemological monism,” Lovejoy would say, “I have already shown to be impossible. In spite of its difficulties, a dualism is the only possibility.” We should like, however, to question this assertion. Prof. Lovejoy thinks the fact of dualism in knowledge to be established beyond all doubt by a consideration of the content, firstly, of sense-experience and, secondly, of memory. Now, to consider sense-experience first, we are prepared to admit that the ‘given’ in sensation is not the real object existing outside. The ‘real’ objects, which we believe to exist in the natural world, are not private but public; they possess qualities (or do not possess them) independently of whether any one is (or is not) aware of these qualities at the time.

But the 'given' in sensation certainly does not possess this independence; it is in some measure dependent upon the physico-physiological constitution of whatever is concerned in the process which ends in our having a sense-experience. There exists a dualism, therefore, between the 'given' in sensation and the desired object of knowledge—to use Lovejoy's phraseology, between the *datum* of sense and the *cognoscendum*. But in thus admitting that the object in sensing is not identical with the physical object in the real world, have we not also admitted an epistemological dualism? Certainly not. The fact that what I sense is not the externally existing physical object (or a quality of the physical object) in no way proves that I can only come to know the physical object *through* what I sense. The point is a subtle one, but it is of the first importance for understanding the problem of knowledge. It is possible definitely to deny that the 'given' of sense is the real external physical object and yet to retain an epistemological monism. (Elsewhere I have tried to show how this may be done. Here I have only room to state my conclusion.) If this is so, Prof. Lovejoy's argument from the private, subjective character of the content in sense-perception does not establish an epistemological dualism. An epistemological monism is still a possible alternative. If, again, we turn to memory, something of the same kind may be urged here. When one remembers a past event we must admit that the past event itself is not present, and yet something is present. "Retrospection is thus a case in which the duality of the datum and the thing known is immediately manifest" (p. 306). In a certain sense the dualism here must be granted. But is memory or retrospection a knowing of the thing known *through* the datum? Is this an adequate analysis of memory? In what exact respect can memory be said to be knowing? And is the actual knowing present the 'representative' kind of process which Lovejoy claims it to be? Perhaps no problem to-day is more in need of the attention of philosophers (although it gets so little of it) than is this one of analysing the experience of memory correctly and adequately. Prof. Lovejoy himself is particularly interested in memory, but in the preface to this work he himself hints (p. xi) that the whole of the final chapter, including the discussion on memory, is fragmentary and inadequate. We wonder whether a fuller analysis might not reveal facts to him (and to us) as to the character of knowing in connexion with memory which might provoke some doubt in his mind as to the validity of his epistemological dualism. We half suspect it would. And our suspicion in this connexion, together with our conviction as to the true character of sensation, make it impossible for us to accept, as something not to be questioned, Lovejoy's assertion that reflexions upon the content of sense-experience and memory themselves lead inevitably to the rejection of a monistic realism, and to the substitution of an epistemological dualism in its place.

The fact is that Prof. Lovejoy's attempted restoration of a

representative theory of knowledge brings back into epistemology so many awkward and baffling difficulties, which one had hoped had disappeared for ever, that he will have to produce much more evidence in its favour than he has done in this book before he can expect to convince responsible thinkers of the soundness of his argument. We should readily grant that sensations, images and concepts exist, and if Lovejoy wants to term these 'ideas' we should have no objection. Also, there is one sense of the phrase in which we should be ready to admit that the mind in the whole cognitive experience 'uses sensations, images and concepts' or, again, 'ideas'. It is for ever striving to use them, we think, to help itself into a position in which it can know. What we do object to, however, is the Lockean view, which Lovejoy reasserts, that what is immediately 'before the mind' is such an 'idea' and *never* anything else : that, accordingly, knowing is merely a something's-getting-reported through the medium of an 'idea' at another place. We think this interpretation of knowing makes a true understanding of its character wholly impossible, and one can only regret to find it reintroduced into epistemological speculation.

We have very little room to discuss the second dualism, that between body and mind, termed in this book the 'psycho-physical' dualism. On the whole, we think, we could accept most of what Prof. Lovejoy asserts in this connexion. The biggest difficulty, we should think, lies in the precise meaning of the term 'dualism' itself in this context. We all know, for instance, that the mind is not the same thing as a chair, but a book also is not the same thing as a chair. Are we then to hold that there is a dualism consisting of book and chair ? Obviously when we talk of the 'dualism' of body and mind we mean by the word 'dualism' more than that the things considered are merely different. Do we mean, then, that the things are different in every possible respect ? But, in this sense, surely, there could be no psycho-physical dualism ; for mind and body are at least alike in existing in the same universe—more, they frequently seem to co-exist in the same organism. Thus the word 'dualism' as used in this connexion, needs very careful definition. Are we really thinking of two substantial *things* here ? Can we apply the category of substance at all ? These, and many like questions, we feel, should first be raised and answered before one can be expected to say whether one actually does believe in a 'psycho-physical dualism' or not.

We may pass this matter by, however, without further comment in order to draw the attention of the reader to the very admirable critical analysis contained in the body of this work. If this review has been rather unfavourable up to this point, it will be understood that it is so not because of the unworthiness of the book as a whole, but because of what we believe to be the too-ready acceptance in one final chapter of an old, one had hoped, out-worn theory. But there can be no two opinions about the excellence of Prof. Lovejoy's critical estimate of contemporary thought. Were this book as

strong on the constructive as it is on the destructive side, it would be a classic; and one can heartily congratulate Prof. Lovejoy on the six middle chapters. We append a very brief and fragmentary summary of these chapters so that the reader may have some idea of the lines upon which the criticism proceeds. We shall attempt to discuss neither the criticisms passed nor the general questions raised.

The 'first phase' of the revolt against dualism, the outcome of reflexion upon the realist suggestions of Moore in England and of James in America, was the work of the New Realists and of such people as Professors Alexander, Kemp-Smith, Laird and Dawes Hicks. The criticisms through which they developed the realist theories were often unfair, being frequently directed against a caricature of the dualistic theories. Lovejoy enumerates seven such inadequate criticisms and shows wherein each was defective. Their efforts led either to a separation of 'existences' from 'subsistences', 'particulars' from 'universals', 'events' from 'essences', and so to the implicit reassertion of a dualism, or to openly absurd theories, particularly about sensation. In the latter connexion, Lovejoy makes much play with the argument from the finite velocity of light and shows how utterly indefensible the position becomes if one argues that what we see when we look at a star a thousand light-years away is the star as it is *now*.

The 'second phase' of the revolt modified the first so as to meet criticisms. It held that the object in knowing is always seen from a point of view, from a certain perspective, but that the object is known as it is *from this perspective*. Knowledge is thus relative. Your knowledge is not mine; none the less, there is no subjectivism and no dualism. We are both in direct contact with the objectively real. (We must be allowed to venture the opinion that criticism of this theory ought to be a simple matter. Such theorists have merely confused knowledge with sensation, and all we need do to refute them is to point this out. Lovejoy, however, adopts another line of criticism.) In this book the theory is termed an 'objective relativism'. The main criticism urged against it runs as follows: While it is true that objectively real existences may have relations without thereby losing any of their objectivity, the relation of a percept to a perceiver may not be wholly identical in character with the relations between purely objective things, and a certain subjectivity may be essential to *this* relation. To understand the position fully we need to define our terms 'relative', 'objective', and 'subjective'. Lovejoy, in some excellent pages (pp. 90-100), proceeds to define and analyse these terms, and to point out that there are, at least, four senses of the term 'objective' and that in only one of these senses can the percept be said to be 'objective'—in the other three it is 'subjective'. In the fourth chapter he discusses the outcome of this 'second phase'. Objective relativism agrees with dualism in holding that the content perceived is relative to the

perceiver, but affirms that it is yet objective. There ensue many difficulties which Lovejoy proceeds to consider. Firstly, there is the difficulty that if what we see is in physical space then illusions, hallucinations—which we also see—must also be in space, and are physical objects. This is well nigh impossible, however, for such objects do not obey the rules which all physical objects obey. If they are physical objects they are very different in character from all other physical objects, and it becomes difficult to talk consistently and sensibly about such objects once we assert them to be physical. Again, if the objective relativist modifies his position to meet this attack and argues that the datum is an essence, adjectival and universal, so that the (universal) quality I perceive *may* belong to a physical object as well, Lovejoy can point to equally great difficulties attendant upon this new position. Actually, he holds, data are not such 'universals' or 'essences'. But if they were, objective relativism could not possibly be justified by an appeal to the 'essence', for the objectivity of the latter is of the kind pertaining to Platonic Ideas and not to objects 'in nature'. Surely, it cannot be the aim of objective relativists to establish a Platonic Realism. And, even if it were, they would not, by this means, rid themselves of a dualism. Lovejoy argues further from the fact that a knowledge which is relative is, strictly speaking, a contradiction in terms. If I can only know a thing from a perspective, and if knowing it from a perspective modifies its character, then such knowledge is not real knowledge of the thing itself, and this hypothesis makes it impossible for me ever to come to know the thing itself, since I must always see it from a perspective. Strictly speaking, objective relativism is a subjectivism and a scepticism. But to *know* is to apprehend what is not relative, what is not 'from a perspective'. Finally, Lovejoy points out that the support from modern physics claimed by such objective relativists is one in appearance only. The Relativity of the physicist provides philosophers with no confirmation of any belief in 'relative' knowledge—knowledge 'from a perspective'. On the contrary, Relativity may truly be said to be the effort to rid our physical knowledge of its perspectivity. If, then, we are to speak consistently, these 'data' perceived, which are relative to the perceiver, must be other than the real external physical objects which we wish to know, and the objective relativist himself must end by affirming some kind of dualism. Actually, the dualism has been present in implication throughout. "The recent and current phase of the revolt against dualism is in fact carried on almost exclusively by dualists" (p. 155).

There remain three chapters of critical work concerned with the theories of Whitehead and Bertrand Russell. Lovejoy considers critically the development of Whitehead's thought (up to, but not including, *Process and Reality*). He shows how Whitehead begins by emphatically rejecting the dualism between qualities perceived and qualities pertaining to things 'in nature'. The 'bifurcation'

consequent on such a dualism only occurs, Whitehead would claim, when one first has committed 'the fallacy of simple location', to wit, that certain elements in nature must be in one place and cannot possess a duplicity or, for that matter, multiplicity of spatial situations. After much close reasoning Lovejoy concludes that the denial of 'simple location' does not enable us to do away with the distinction between public objects having public qualities and private sense-data, and that Whitehead himself, in spite of his avowed rejection of dualism in this connexion, is implicitly proposing a dualism between sense-data and a world of real things not conditioned in perception. Perhaps Prof. Lovejoy is at his best in the two chapters which he devotes to criticising Mr. Bertrand Russell. It is Mr. Russell's aim to rid philosophy not so much of the epistemological dualism but of the psycho-physical. He has endeavoured to do this in two ways. Firstly, he so defined the *physical* object as to give room in it for what we see (a 'mental' something). Thus, for instance, a table is defined as "the set of all those particulars which would naturally be called 'aspects' of the table from different points of view". The set, however, is to include all possible, though as yet, perhaps, unperceived, 'aspects', related according to the laws of perspective. He thus avoids a mere phenomenalism while at the same time identifying what we see with the physical. Lovejoy subjects this first theory to a rigorous criticism. He shows how it contradicts itself; how it is opposed to the scientific teaching of the day; how it leads to absurd consequences, particularly if we think of our own brains as physical objects; and, lastly, how it is applicable to *visual* sense-data only. The dualism between, for instance, tactual sense-data and physical objects would presumably still remain. Russell's second and more famous attempt to overcome psycho-physical dualism in his *Analysis of Matter* and *Outline of Philosophy* of 1927 is also criticised. Here, a difference between sense-data and the external object which causes them is admitted, but no dualism of mind and body is allowed, because sense-data are 'in my brain'. But this, Lovejoy points out, is an easier theory to state than to hold consistently. If sense-data are physical, then they are so in a very peculiar way. The laws of physics do not apply to them, as Russell himself seems to admit. To make the theory consistent we should have to assert that the electrons of brain-matter possess a characteristic which other electrons do not possess. This is near enough to a dualism to satisfy Lovejoy that Russell has not, as yet, established a psycho-physical monism. Lovejoy claims that Russell's position collapses suddenly, at the end of the *Analysis of Matter*, when it is finally argued that the ground for holding the 'common stuff' theory is not the fact that psychical events exist in the brain or in anything physical, nor again that there is a likeness between psychical and physical, but merely that psychical events are causally related to physical. This, Lovejoy asserts, leaves us with a definite dualism; on the one hand, the world

of experienced content 'outside physics', on the other, its physical cause. Mr. Russell has not shown that the content of perception, of imagination, of memory, and so on, are so many elements in the physical world. A psycho-physical dualism still remains as the only consistent theory.

Prof. Lovejoy has written a book of real importance. His examination and analysis of the present situation in epistemology is worthy of serious attention both because of its acumen and because of its admirable thoroughness. But we doubt whether his 'epistemological dualism' will be generally accepted. Prof. Lovejoy's arguments in connexion with this matter are certainly not strong enough to convince the unbeliever; nor can we see that there is any future for the representative theory of knowledge.

R. I. AARON.

Studies in Philosophy and Psychology. By G. F. STOUT. Macmillan & Co., 1930. Pp. xiii + 408. 15s.

THIS book is a collection of Prof. Stout's scattered philosophical papers, written during the period of thirty-nine years from 1888 to 1927. All have been published before, mostly in *MIND* or the *Aristotelian Society Proceedings*, except the essay "In What Way is Memory-Knowledge Immediate?" (1927). Certain small changes have been made in most of the papers, and the titles of two of them have been altered.

Two of the essays are mainly expository, viz., "The Herbartian Psychology" (1888) and "Ward as a Psychologist" (1926). The former is a very clear and most useful account of the psychological theories of an eminent thinker who is too little read in England. It is much to be wished that Prof. Stout or some other writer with a gift for sympathetic understanding and lucid exposition would write a similar essay on the Herbartian metaphysics. It is obvious that much of the dialectic in Book I. of *Appearance and Reality* was greatly influenced by Herbart. It is also difficult to see the point of several passages in Lotze's *Metaphysics* unless one is acquainted with Herbart's views. Yet, so far as I know, no English translation or commentary exists.

Three of the essays are predominantly psychological, viz., "Voluntary Action" (1896), "Perception of Change and Duration" (1899), and "The Nature of Conation and Mental Activity" (1906). The essential parts of the first and third of these are now, I take it, contained in the *Analytic Psychology* and the *Manual*; but Prof. Stout warns us that he no longer holds that the activity of the self can be ascribed to the mind alone in abstraction from the body which it animates. For the further exposition of his present views of the self

and its activity we must await the publication of his *Gifford Lectures*. (There is a misprint in the essay on voluntary action. On p. 64, l. 30, for "previous" read "pervious"). The contention of the essay on the perception of change is that the earlier parts of a perceived process are not always or often represented during the latter stages by imitative images. This seems plainly true.

The essay on the nature of mental activity incidentally criticises Bradley's views on this subject; and three other essays deal explicitly with Bradley's doctrines. These are "Bradley's Theory of Relations" (1901), "Bradley's Theory of Judgment" (1902), and "Bradley on Truth and Falsity" (1925). The statement of Bradley's theory of judgment seems to me to be fair, and the criticism annihilating. Indeed, the theory collapses at once when stripped of the buckram of metaphor and rhetoric with which Bradley was wont to clothe his doctrines. The essay on Bradley's theory of relations begins with some very odd remarks to the effect that, properly speaking, there can be relations only between discrete terms, and that the adjunction of two finite lines at a point in a longer line composed of them is not a relation. I cannot follow the argument (p. 184) by which this is held to be proved.

After this Prof. Stout deals with Bradley's argument against relations by drawing a distinction between a relation and what he calls "the fact of relatedness" (p. 187). The latter is said to be "a common adjective both of the relation and of the terms" (p. 192). And no relation is needed between a relation or other term and its relatedness, "for the connection is continuous, and has its ground in that ultimate continuity which is presupposed by all relational unity" (p. 192). I find all this obscure to the last degree. How can a *fact* be an *adjective* of anything? If it could, in what sense could it be a *common* adjective of several terms and a relation? The only common adjective would surely be the characteristic of "being a constituent in this fact of relatedness". Again, is it not plain that "continuity" must be used in a totally different sense in Prof. Stout's example on page 184 about the adjoined parts of a line, and in the statement on page 192 about the connection between a term or a relation and its relatedness being "continuous"? Bradley's argument is, no doubt, fallacious. And what Prof. Stout has in mind may be the right answer to it. But, if so, he has certainly failed to state clearly what is in his mind. On the other hand, the criticism of Bradley's theory of truth and falsity in the third of these essays is admirable, and, to my mind, conclusive.

Another essay which explicitly criticises the doctrine of a contemporary thinker is that on "Russell's Theory of Judgment" (1915). This subject is again dealt with in "Real Being and Being for Thought" (1911). The criticism of Mr. Russell's theory in the latter paper (pp. 350 to 352) seems to me to rest on a complete misunderstanding of his doctrine. But all that Prof. Stout has to say on the subject in the first-mentioned paper is highly interesting and important.

Prof. Stout accepts the three conditions which Mr. Russell laid down for any satisfactory theory of judgment, and then adds three further conditions which he thinks equally necessary. The first two of these are plainly true and essential. The third is that "the correspondence of belief with actual fact must be thought of and asserted by the believing mind" (p. 243). This, as stated, seems to me quite incapable of fulfilment. If taken literally, it would involve that every belief either is or presupposes a belief about itself and its own relations to something else. The first alternative is nonsensical, the second would involve a vicious infinite regress of beliefs about beliefs about beliefs. . . . Really, however, it is not what Prof. Stout means. He holds that what we believe is always that a certain determinate value, which we are *contemplating*, and which we *know* to be one *possible* specification of the predicate of a certain determinable fact which we are also contemplating, is the *actual* specification of this determinable fact. Mr. Russell's theory is condemned, rightly, in my opinion, because according to it "the truth of a belief consists in a correspondence between something which the believing mind does not think of at all" (*viz.*, the state of believing) "and something else which it does not think of at all" (*viz.*, the completely determinate independent fact) (p. 250).

Prof. Stout's own views on the nature of judgment, of error, and of knowledge by acquaintance and by description are developed in the essays on "Error" (1902), "Immediacy, Mediacy, and Coherence" (1908), and "Real Being and Being for Thought" (1911). These essays also contain much incidental criticism of Bradley and of Mr. Russell. I have very little doubt that Prof. Stout's positive theory of the nature of judgment and of error is substantially right. At the very least it is much the most important and plausible theory that I know of, even though one might prefer to state some parts of it in rather different phraseology from Prof. Stout's.

The essays on "Some Fundamental Points in the Theory of Knowledge" (1911), and "In What Way is Memory-Knowledge Immediate?" (1927) may be taken together. They both deal with a fundamental doctrine of Prof. Stout's, *viz.*, that we have non-inferential knowledge of the existence and nature of certain particular existents which are not themselves present experiences, and that this knowledge is founded upon and determined by our present experiences. (There seem to be two misprints in the latter paper, on p. 177. In l. 21 for "immediate" read "mediate". In l. 31 read "finite" for "infinite" at the first occurrence of the latter word in the line.)

Prof. Stout's doctrine, just mentioned, is most plausible in the case of memory of past incidents in one's life. It is certain that the memory-judgment is not inferential; it is certain that it is founded upon and determined by some present experience; and it is certain that the remembered event is no longer being experienced. Prof. Stout rules out *a priori* knowledge of particular existents, and

"clairvoyance" (by which I think he must mean a present act of direct acquaintance with a past event), as "miraculous". He considers that we are then forced to accept his doctrine. But surely another alternative is that memory-judgments are not *knowledge*, but only strong belief or opinion. And the same alternative would seem to be open in all the numerous and important applications which he makes of this doctrine. Of course, if we take this alternative, it is difficult or impossible to see how such beliefs or opinions can ever be logically justified. If Prof. Stout put to us the disjunction: "Either there is *some* genuine knowledge of this kind, or *no* beliefs of this kind have *any* rational ground", I think we might have to accept it. And, if we strain at the second alternative, we should then have to swallow the first. But perhaps, after all, no such beliefs are justifiable, as presumably Hume would have held.

In the essay on some fundamental points in the theory of knowledge Prof. Stout applies this doctrine to two questions, *viz.*, (1) the unity of the self, and (2) the relation between presentations and presented objects. A self is nothing but a set of experiences inter-related in a certain characteristic way. But this characteristic unity of the experiences with each other is determined by the fact that they all refer to and give knowledge of so many different aspects and phases of a single total Object. From this premise Prof. Stout draws, on page 361, an important conclusion which quite certainly does not follow from it alone. Because all the experiences of *each* self must refer to a total object common to *those* experiences, he concludes that there must be a single total object which is common to *all* the experiences of *all* selves, *viz.*, the Universe. It is plain that all that really follows is that there must be a "universe" corresponding to each self; whether these various "universes" are all parts or aspects or phases of a single Universe remains a completely open question.

As regards the second question, Prof. Stout argues that a present experience can be known only as one constituent in a fact which goes beyond it and is also a fact about a presented object which is not a present experience and may not be an experience at all. What is primary is knowledge of such facts, and our knowledge of the presented object and of the presenting experience are thus on precisely the same epistemological level. Here, again, it seems to me that a more sceptical philosopher might consent to go a mile with Prof. Stout, but might refuse to go with him twain. He might substitute "proposition" for "fact", and "belief" for "knowledge", and say that what is fundamental is *belief* in certain *propositions* which are about a presenting experience and a presented object. And he might add that from this belief we can derive *knowledge* of the existence and nature of the presenting experience, but only *belief* about the existence and nature of the presented object. Such a position may be refutable, but it seems consistent with most of Prof. Stout's arguments.

There are two essays which deal explicitly with the problem of the physical world and our alleged knowledge of it, *viz.*, "The Common-sense Conception of a Material Thing" (1900), and "Things and Sensations" (1905). Both are highly interesting and important contributions to the subject.

The last essay in the book is on the "Nature of Universals and Propositions" (1921). This expounds a doctrine which is very dear to Prof. Stout, and which can be traced back in the essays to the days when he was at Oxford, and presumably came under the influence of Cook Wilson. I think that the statement and exposition of the theory would have been much improved if Prof. Stout had distinguished the two quite different correlatives (*a*) substantive and adjective, and (*b*) continuant and occurrent. It seems to me that one part of what he wishes to maintain is simply that a substance or continuant is nothing but a set of occurrents interrelated in a certain characteristic way. There is nothing startling in this view, since an occurrent is a particular and is perfectly determinate in character. The other part of what he wishes to maintain seems to be that, when several precisely similar occurrents are said to be "exactly alike in quality", this relation of exact qualitative likeness is ultimate and is not analysable into the fact that there is a certain peculiar entity called a "determinate quality" which stands in a common relation to all of them. There is nothing startling in this view either. And it is not clear to me that Prof. Stout means to assert anything more than these two views. If so, I think he may very well be right. But I cannot see that he has produced any conclusive reason for rejecting, either the view that a continuant is *not* simply a set of suitably interrelated occurrents, or the view that precise qualitative similarity *is* analysable in the traditional way. The whole question seems to me to remain completely open in spite of this essay of Prof. Stout's.

I have confined myself mainly to criticism in this review. I would like to add in conclusion (what is hardly necessary in the case of a work by Prof. Stout) that the book as a whole is a contribution of the greatest interest and importance to philosophy. It is a most impressive record of a life spent in the service of the moral sciences, and one cannot read it without being reminded of how much Prof. Stout has done to illuminate and criticise the work of his contemporaries and how much he has himself contributed to the great development of English philosophy in the last forty years.

C. D. BROAD.

Essays on the Natural Origin of the Mind. By C. A. STRONG.
London: Macmillan, 1930. Pp. 304. 12s.

THIS book is intended as an attempt to make more intelligible what might be described as the great mystery of naturalism, namely, the connection of the mind with the body and its origin from physical nature. Whether Prof. Strong achieves this ultimate aim is perhaps doubtful, but at any rate he contributes a great deal of value by the way.

Like so many modern thinkers he endeavours to bridge the gulf between matter and mind by making each term of the antithesis more like the other than appears on the surface. In this he is helped, on the one hand, by the recent developments of physical science which destroy the old dogmatic materialism and suggest the equation of matter with energy, *i.e.* with something which can plausibly though perhaps mistakenly be regarded as quasi-mental, and on the other hand, by the advance of physiological psychology. He is strongly influenced by recent developments of the latter study when he defends the old view that the mind, as revealed in introspection, and the nervous system are but different aspects of the same thing, and when he dwells on the essential importance for knowledge of motor adjustments. Even more important for his theory is the doctrine that cognitive acts and awareness in general are not experiences discernible in introspection but relational functions. "If awareness were an ultimate fact, a magical power of self-transcendence or of contemplation, it could only "emerge", as something wholly new and impossible to account for; but if it is a function, consisting in the use of non-self-transcendent and intrinsically unaware feelings as signs, the task of evolutionary psychology is immensely lightened" (p. 13). Such a function requires indeed something which exercises the function, but this something is not for the author a unitary soul but a complex combination of states of "sentience", and it is much more plausible to hold that this sentience, which can easily be ascribed to the lower animals and even to inorganic matter, through certain complex combinations developed the fresh relational properties which in the author's view constitute cognition and awareness, than to hold that there arose from an unconscious and totally alien matter a rational soul-substance with the power to perform knowing acts regarded as radically distinct from any feeling.

Perhaps the best part of the book is the account of perception given in the earlier sections. (The first four chapters will not be unfamiliar to the reader of *MIND*, since they have already appeared as articles in this periodical though they have been subsequently revised.) Prof. Strong distinguishes the sense-datum from the physical thing but insists that the latter is still an object of immediate perception, though in apprehending it we must use the content provided by the sense-datum. He thus makes a skilful attempt to combine the advantages of the direct and the representative theories of perception.

In order to perceive anything, we need, according to his account, (1) a sense-datum, (2) "intent" (reference to an object), (3) the "animal faith" that in so referring it we are partially apprehending the real world. Fourthly is posited "sentience" as the basis in our states of feeling from which we build up our sense-data (*cf.* Bradley's "immediate feeling"). Sense-data differ from sentience in being projected externally and amplified by selection from sentience of the practically relevant. Of course the view expounded is a type of "critical realism", and like most members of the school Prof. Strong regards sense-data as "universals" (a course which seems to me quite incompatible with the evidence of immediate experience). The reference of perceptions to objects is explained by the fact that we physically react to objects when we perceive them, *e.g.* adjust our attention according to their distance. The author advocates an atomistic psychology which would reduce "sentience" to a great number of small parts (it is supposed to be extended in space), although these are not perceived in introspection, and thinks that he can solve various difficulties in the theory of perception by means of the hypothesis; but unfortunately at this point his customary lucidity deserts him. He is at pains to defend the view that, besides perceptions which are misinterpreted intellectually, we can have perceptions which are themselves erroneous, and applies this even to introspection of oneself. "The error in these cases does not consist in attributing a wrong context to things which, in themselves, were correctly perceived to exist: it consists in perceiving something to exist which in fact does not exist. The eyes are directed at a certain spot, where something exists that might be perceived; in that spot something is seen which is different from what really exists there—as when, owing to the projection of an after-image, we see on a wall a red spot at a place where the wall is really white; and what we see is therefore something that does not exist at all" (pp. 96-97). The red spot is not an existent: by "intent" it is referred wrongly to a particular real object (the wall), but apart from this it is a universal. Acquaintance is not infallible except in the tautologous sense that we are only acquainted with that with which we are acquainted; and the apparent and real thing must not be separated. Even in erroneous perception they are identical as objects of "intent", for the perceiving would not be erroneous if it did not identify them.

The elaborate theory of perception presented here could obviously not be criticised fairly without a much longer analysis and discussion than space permits, but whether ultimately tenable or not it must be regarded by all students as an exceedingly able attempt to meet the difficulties with which the subject fairly bristles. A similar account is given of introspection and memory, the author insisting that these too are liable to error. On the other hand he thinks there is no adequate reason to doubt the fundamental, though not universal or complete, truthfulness of perception, at least in regard to the primary spatial qualities, and argues that naturalism so far from leading to scepticism has the opposite implication, since the fact that we are ourselves part

of nature is the strongest guarantee that nature can be known by us.

He then passes on to the problems of space and time, and in chap. iv. defends with great ability the view that points of space and instants of time are real entities and not mere fictions. The present, he insists, is alone real, but it must be an instant or nothing; and again physical objects must meet in real lines and points as boundaries. He succeeds in making this view seem far more defensible than would appear to many at first sight, though he dismisses much too lightly the difficulty that unextended points cannot make up an extension, by merely saying that an *infinite* number of them can do so. This leads to an interesting point about causality. Even a single instant must clearly involve something of the nature of change or passage since otherwise change could never be immediately experienced, and this is found in its power to produce the next instant, *i.e.* in causation. For while the author thinks that "Hume was probably right in denying that the cause *logically implies* the effect," he holds that he was wrong "in denying that the cause *naturally involves* the effect, and can be recognised in experience as doing so." A further expansion of these views of Prof. Strong on causation would be very welcome.

The next chapter (v.) is much less satisfactory, which is very unfortunate as it deals with the central topic of the book, the relation between soul and body. The theory adopted is a form of parallelism but the exposition is not very clear. Perhaps the main cause of difficulty is that on the one hand the author wishes to maintain that we are really perceiving the same thing, when we introspect, as the physiologist is when he observes our nervous system, and that on the other he is unwilling to reduce either of these aspects of the self to the status of mere appearance. His views on the question are perhaps best expressed in an earlier chapter. "That states of sentience as they really are may differ markedly from states of sentience as they appear, is shown by the fact that these same states appear to the senses in the form of exceedingly complex nervous processes. We thus have two modes of access to them, two divergent accounts of what they are, and must conceive them in such wise as to reconcile with each other these two unlike visions of them. We might indeed be tempted to discredit one or the other of the visions, and to treat the object at once perceived and introspected as either predominantly physical or predominantly psychical: but there is no reason why we should not retain our natural confidence in the truthfulness of awareness so far as the visions do not contradict each other; and if we do so, we shall conceive the state of sentience as having the peculiar nature shown by introspection, but as being in space as well as in time, composed of innumerable parts, and causally efficacious, like all objects of perception. In this way we shall reach the conception of sentience necessary for explaining the origin of consciousness" (pp. 39-40).

We have devoted so much space to the earlier part of the book that the remainder must be treated with greater brevity than it

deserves. Chap. vi. is a very ingenious but not very satisfying attempt to explain all thought in terms of images and motor reactions. The facts that the image may often be so slight as almost to disappear from consciousness, and that we can apprehend relations although an image of a relation is difficult to discover in introspection, are explained by pointing out that what is essential is not the image but the reaction. It would be unreasonable to expect Prof. Strong to develop the theory fully in a single chapter, but even if his account of simpler cases were acceptable, and even if I could overcome the difficulty that consciousness is palpably and absolutely different from anything of the type of motor reaction, it would still remain extraordinarily difficult for me to see how he would deal with the more abstract kinds of thought in terms only of images and motor reactions, how, for instance, his theory could explain our understanding of a single page of his own book. He makes no attempt to overcome this difficulty, because he thinks that if his theory will account for our awareness of the elementary it must also be able to account for the most complex thought-processes, since the latter are always composed of the former (p. 221). But surely the argument cuts both ways : at any rate a theory can never hope to win general acceptance till it is applied not only on ground where it seems to have most in its favour but also in those regions where the evidence is *prima facie* most strongly against it.

Chap. vii. is a very able attempt to explain the "unity of consciousness", but is hardly capable of being summarised here. There is one bad mistake ; for in the short account given of Kant's view of the self the author says that the only thing revealed by "inner sense" is the "I think", thus completely confusing the inner sense and the transcendental unity of apperception. The eighth and last chapter is a defence of "unconscious feeling" and a criticism of the view of the mind held by William James.

The book may be heartily recommended to all who are interested in the philosophical controversies of the present day. Its defects, if defects at all, are at any rate mostly common to the schools of thought which the writer represents ; its merits are to a larger extent its own.

A. C. EWING.

The Conquest of Happiness. By BERTRAND RUSSELL. London : George Allen & Unwin, 1930. Pp. 252. 7s. 6d.

THIS is a brilliant book which for wisdom and wit is comparable with Bacon's *Essays*, and indeed may well be judged preferable to it, because it is free from Bacon's somewhat sordid worldliness, and is better adjusted to the conditions of modern life. Although in his Preface Mr. Russell declares that it is "not addressed to the learned, or to those who regard a practical problem merely as some-

thing to be talked about," it is emphatically a book all philosophers should read. They should read it for entertainment, which they sorely need to enliven them; but also for instruction, especially the moralists. For they may learn from it not only how to write philosophy simply and effectively, but also how to strip ethics of its traditional cant and humbug and to make it interesting and applicable to life. If academic philosophers have not utterly destroyed the public's taste for philosophic reading, and one often fears that this is to be counted among the achievements of professorial philosophy, Mr. Russell's book ought to be a best seller; if it is not, the public will miss a good thing.

To praise Mr. Russell is not, however, to agree with him, or at any rate it is not to agree with him wholly. Indeed it is by no means difficult to doubt or dispute many of his contentions, and he deliberately abstains from raising ultimate issues. Thus he definitely addresses himself to the more or less comfortable middle classes, for whom the servant problem is a vital question, and in Russia his work will doubtless be denounced as inquiring 'how to be happy though a *bourgeois*'.

Nor is it hard to point to omissions. In Part II., 'The Causes of Happiness,' there should certainly be a chapter on "Pets and Hobbies" and how to select them; for their essential contribution to such happiness as mortals may compass is by no means adequately recognized in the chapter on Impersonal Interests, which only rarely rise to the dignity of a hobby. A hobby ranks rather with a man's *work*, and forms the natural complement to the latter, while pets may be found to suit all tastes and to provide all degrees of employment for their masters, from a frisky fox-terrier puppy or an eel to a sedate cactus, or a tortoise. Again a separate chapter on self-conceit would be desirable; at present Mr. Russell assumes too lightly that its value is clearly negative, because its protective armour can too easily be pierced. Yet it is by no means rare to encounter really impenetrable cases of self-conceit, while acute misery due to diffidence and lack of a sufficiently good conceit of oneself is as plentiful as blackberries. Lastly, if the Sense of Sin deserves a chapter to itself, why not the Sense of Humour? I admit that Mr. Russell might find this also ambivalent and hard to classify: he would have to weigh its direct delights and the value of its alleviations of the vicissitudes of life against the sufferings of the humorous from the inappreciativeness of a humourless world, and the pains of the world in trying to understand the humorous. But it would be a chapter well worth writing, and I feel sure Mr. Russell could make it the best in his book!

But we should turn to graver issues. When a man sets out on a conquest of happiness he claims to be a greater conqueror than Alexander, who, it is pointed out (p. 23), was probably unhappy, being "psychologically of the same type as the lunatic". And the piquancy of the situation is much enhanced by the fact that this enterprise is undertaken by an apostate pessimist, the author

of one of the star passages of pessimistic invective, which is always quoted in illustration of the insignificance of man's place in the cosmos and the hopelessness of human prospects. Mr. Russell himself is of course to be heartily congratulated on this improvement in his estimate of the universe ; but it is not so clear that the universe has itself got any better. And even if Mr. Russell does not feel handicapped by his past, he must feel that any conquest of happiness entails an encounter with the king of terrors, and demands a conquest of death. This difficulty Mr. Russell rather shirks. He appears to think it will suffice to shut one's eyes to the fact that death rather than happiness is the end of all that lives. We can, he thinks, imaginatively live on in others. We can cultivate impersonal interests, and a sense of the littleness of man, and of his fortunes or misfortunes. We can contemplate the immensity in time and space of cosmic processes. In short, he warms up all the traditional consolations of the ancient Stoics. His former proofs of the futility of such consolations he simply ignores, and he no longer cares to recommend even mathematics as an anodyne, perhaps because he has by now sated the curiosity about it which kept him from suicide (p. 18). (I may here remark parenthetically that I have found the frequent autobiographical passages among the most interesting in the book. They show that Mr. Russell has in him the makings of a really great autobiographer, though if his theory is right that avoidance of introspection is one of the safest roads to happiness, it could be written only at the cost of some unhappiness to himself.)

But even though Mr. Russell can ignore his past, many of his readers will remember it. They will feel that he has passed over the problems of pessimism altogether too lightly. This no doubt is a besetting sin of all philosophic theories of life. None of them has successfully grappled with the truth in pessimism : all of them simply assume that because happiness seems desirable it must also be attainable. For all this there are doubtless good biological reasons ; but the consequences of the omission show in the logical structure of the theories. Mr. Russell's hedonism also has its ethical type determined by its refusal to encounter pessimism. It is thereby rendered a superficial view, almost Philistine indeed, which fears to dive beneath the surface, lest it should encounter the monsters of the deep. One feels that it would be an ethic suitable for the future men of Mr. Wells's imagination in *The Time Machine*, who were the prey of subterranean 'Morlocks'.

It is quite in accordance with this surface view of happiness that Mr. Russell should start by postulating that animals are happy and arguing that there is no reason why men should not become happy likewise by renouncing worry and cultivating a similar levity of mind. For it is generally assumed that animals live without consciousness of death. So, for the matter of that, do most men most of the time. But with men, it is all make-believe ; and the spiritual leaders of the race always escape, like Gotama the Buddha, from the fools' para-

dises in which society endeavours to enclose them. So this attitude towards life does not seem to guarantee happiness; it is obviously partial, superficial, insecure and insincere.

Still it is an attitude men have tried to maintain over and over again. It was tried, brilliantly, by the Greeks; and this no doubt accounts for the marked, though undesigned and probably unconscious, family resemblance between Mr. Russell's advice and that given in Aristotle's *Nicomachean Ethics*. After all it betokens a serious lack of historical perspective to take the problem of modern ethics as merely one of clearing away the antiquated taboos of the Christian tradition. This forgets that pretty nearly every possible experiment in conduct has been tried, not once but often. Hedonism, asceticism, rigorism, licence, individualism, socialism, communism, optimism and pessimism are not new, though they may strike as new those who are ignorant or oblivious of the lessons of history. The Christian tradition itself grew up as a reaction against pagan theories of life which were felt to have broken down. Possibly those are right who contend that in its turn it has now failed. But if it has, what we need is a *new* synthesis and not a mere *réchauffé* of pagan ethics. It is, moreover, conceivable that such a synthesis is in sight. The eugenical ideal, the idea of a consciously planned improvement of the human stock which aims at creating a race capable of achieving happiness, as well as other ideals, in greater measure, may prove to have sufficient driving power to organize a new moral order, and sufficient stimulus to control the chaotic passions of human nature: if so, it may be possible to stave off what looks very like an imminent period of social decay, or even collapse, similar to that which overtook the ancient world. But it is also possible that the eugenical ideal will be found deficient in dynamic quality, or that a jealous democracy will not allow it to be tried: if so, we must resign ourselves to a continuation of our present policy of multiplying morons and lunatics in a herd that is sinking to an ever lower intellectual level. And unless the beasts are really as happy as Mr. Russell professes to believe, this policy does not look likely to conduce to universal happiness. It cannot yield, at any rate, a *complete* solution of the problem of life; for it has nothing intelligible, or even brave, to say about the problem of death.

F. C. S. SCHILLER.

VII.—NEW BOOKS.

The Austrian Philosophy of Values. By H. O. EATON, Ph.D. University of Oklahoma Press, Norman, 1930. Pp. 380. \$5.

Dr. Eaton's book gives a full account of the doctrines of what he calls 'The second Austrian school' of value theory, that is to say, the philosophical writers on value theory as contrasted with the economists. By far the larger part of the book is occupied with an exposition of the doctrines of Meinong and Ehrenfels, but a preliminary account is given in the first three chapters of those parts of Brentano's philosophy which have a special bearing upon the value theories of his two pupils. The exposition of the doctrines of Meinong and Ehrenfels falls into two parts, of which the first (chaps. iv. to viii.) deals with the psychology of valuation, and the second (chaps. ix. to xiv.) with the more objective or ethical study of values themselves.

A brief indication of the contents of the successive chapters will show the amount of ground covered by the book. Chap. i. gives a sketch of Brentano's career and a short account of his psychology, laying stress on the empirical character of his method and on the importance which he attaches to psychology as providing a basis for the human and social sciences. Chap. ii. states his views about the mental phenomena which he classes under the head of 'love and hate'—the words 'liking and disliking' would probably convey the meaning better to the English reader—that is to say, the phenomena of feeling and will taken as belonging to a single type in contrast to the other two main types, idea and judgment. An important consequence of this classification is that valuation is not a matter of judgment in the strict sense of the latter term. Nevertheless in his book on the knowledge of right and wrong (the argument of which is analysed in chap. iii.) Brentano maintains that, just as there are self-evident judgments of what is true, so there are self-evidencing acts of appreciation which guarantee the rightness or intrinsic value of their own objects—a position which his pupils did not adhere to. In the main body of the work Mr. Eaton expounds the doctrines of Meinong and Ehrenfels together, connecting and comparing the views of the two writers. And this is the natural procedure to adopt, for Ehrenfels was a pupil of Meinong as well as of Brentano, and the two men worked out their theories with each other's doctrines in view. With chap. iv. we start the exposition of the psychology of valuation, and this chapter gives Meinong's view of value as based on feeling, and his view of the part played in valuation by judgment as connecting the value-object with the value-emotion. Ehrenfels, on the other hand, bases value primarily on desire (though desire in turn is determined by feeling or feeling-disposition), and chaps. v., vi. and vii. give an account of his views about desire. Chap. viii. is entitled 'The Definition of Value': it gives a general comparison of the views of the two writers in regard to the psychology of valuation. In chap. ix. we pass to the more objective

study of values and ask how far, on the principles of the school, a discrimination can be made between false or imaginary and true values, and this question is connected with the question of the place of judgment in the process of valuation. "Meinong, in his later work," we are told, "tends to favour a theory of over-personal values in order to escape the strict relativism of his theory of personal values" (p. 216); but it is not clear from Mr. Eaton's account that the later work goes beyond a more careful determination of the conditions under which valuations take place. Chap. x. deals with the distinction between egoism and altruism, with Meinong's classification of desires and values in relation to this distinction, and with his attempt to discover formulæ of value based on the proportion of egoistic and altruistic elements in an act. Chap. xi. deals in the main with Meinong's classification of moral actions as blameworthy, praiseworthy, permissible, etc., in relation to a moral 'value-line'. In the discussions analysed both in this and in the preceding chapter "Meinong is seeking to apply the marginal analysis of the Austrian economists" to the subject-matter of ethics. The reader who comes to it all from the point of view of the traditional ethics will be apt to think that the most striking thing about the investigations reported in these two chapters is the amount of mis-spent ingenuity that has been devoted to them. The remaining three chapters are occupied mainly, though not exclusively, with an account of Ehrenfels's causal theory of moral values, a theory worked out (as we may say, roughly speaking) on utilitarian and biological lines.

Throughout the book Mr. Eaton's purpose is almost exclusively one of exposition. "The present work", he says in the Preface, "is an attempt not at appraisal but at understanding" . . . "the judgment of fact must precede the judgment of value, and preferably should be completely divorced from it." Accordingly we are not to look for any general criticism or estimate of the work of the Austrian school. Critical comments do occur from time to time, but as a rule they are intended to supplement the exposition, e.g. by making comparisons between Meinong and Ehrenfels, or by calling attention to difficulties and weak points in the theories and to further questions that might be raised. The exposition as a whole is comprehensive, painstaking and well arranged. It covers a great deal of ground (e.g. the argument of large sections of Ehrenfels's *System der Wertheorie* is carefully analysed), and, so far as my knowledge and means of reference enable me to check it, gives nearly always a clear and faithful account of the original discussions. The book will be very useful as bringing a mass of material under survey, and especially useful to English readers who may wish to obtain a general view of the discussions of the Austrian school without having to work through the literature for themselves. For those who wish to study the literature Mr. Eaton provides a three-page bibliography of the writings of Brentano, Meinong, and Ehrenfels, on value theory and allied subjects; it includes references to many scattered articles. The book contains photographs of the three writers.

After reading a comprehensive survey, such as is here given, of the work of the Austrian school, the question is likely to suggest itself, What is the real value and result of all this work? Mr. Eaton has spent much time and study upon it, and not unnaturally estimates its value very highly. For him it represents the "birth of an entirely new and independent philosophical discipline". Readers who ask the question from the point of view of the traditional philosophical disciplines will hardly be prepared to concede the claim. On Mr. Eaton's own showing the work of the school may be brought under the two heads of the psychology of the process of

valuation and the more objective study of values in general and especially of ethical values. But psychology and ethics are philosophical disciplines that are already in possession of the field, and many of the topics discussed by the Austrian writers are familiar problems of ethics or ethical psychology. What is novel in the work of the school seems to depend mainly on the fact that their work was suggested in the first instance by the discussions of value theory among the Austrian economists; and a question that needs to be asked is, whether the approach to the problems of valuation and value from the side of economics has been really advantageous, even where the limitations of the economic treatment of value are expressly recognised and set aside. Such a mode of approach seems to me to have had a definitely prejudicial influence both on the psychology and on the ethics of the school. Economic values are instrumental and relative, and they are merely factual. The economist does not ask why things are valued and whether they are rightly valued; he only asks whether they are in fact valued and in what proportion to each other. Now the philosophical writers are of course aware that economic values are only one class of values, and that a philosophy of values has to ask questions that economics does not concern itself with. Yet although they ask more general questions and questions that go deeper into the psychological processes involved, these writers remain at a merely factual or causal point of view. They ask, not about that character in the object which gives it its claim to be valued, but about the feelings or desires in us that cause us to attribute value to the object. The very fact that they start with the psychology of valuation before they have determined anything about the objective values themselves is significant. It means that we start on a purely subjective basis and never really get away from it. Asking in the last chapter what the Austrian school has to offer us by way of ultimate goals of action, Mr. Eaton himself says, "What could any school offer which has been so subjective, so empirical, so relative, so . . . evolutionary in its thought as we have seen this school to be?" (p. 351). Surely such a description is fitted to excite grave suspicions about the real value of the doctrines to which it is applicable. Naturally, thinkers so able as Meinong and Ehrenfels have not laboured for years without producing work that is of great interest and that merits the most careful consideration; and we may add that the impression which their ability produces is no doubt considerably heightened by the novelty of the point of view and terminology and by that kind of elaboration of detail which seems congenial to the school. But the question remains, whether the re-writing of ethics and ethical psychology from this new point of view and in this new terminology is likely to be of any real advantage to these studies. One service rendered by Mr. Eaton's survey of the work of the Austrian school is that it makes this question easier to answer.

H. BARKER.

Rational Induction; An Analysis of the Method of Science and Philosophy.
By HOMER H. DUBS, Ph.D. Chicago: The University of Chicago Press. 1930. Pp. xv + 510.

DR. DUBS is concerned to maintain, not only that the method of dealing with scientific problems ought to be the method of philosophy, but also that this method is capable of yielding conclusions that can be known to be true. There is much to be said in favour of the view that the method of philosophy is not fundamentally different from the method of science;

it is, indeed, a view that would be acceptable to not a few contemporary philosophers. But its acceptance would usually be combined with the contention that progress in philosophy, as in science, depends upon a co-operative effort to reach conclusions which it is *reasonable* to hold, rather than with the contention that in the one case or in the other it is possible to attain conclusions that are *certain*. Accordingly, the main interest of Dr. Dubs's book relates to his claim that certainty *can* be secured provided that the right method be employed. "The fundamental problem of philosophy, and likewise of all science," he says, "is not the problem of the method of knowing, but the problem of certainty—how can we be sure that this piece of suppositious knowledge is real knowledge? Is there such a thing as certainty, and by what marks or by what method can we tell when we have reached certainty?" (p. 6).

There are, then, two main questions to be asked: (1) what is meant by "certainty"?; (2) what is the nature of the method whereby certainty is to be attained? Since he is convinced that the only proper method is the method of science, it is his answer to the second question that has determined Dr. Dubs's conception of certainty. In view of this conviction it is of the utmost importance that Dr. Dubs should make perfectly clear what precisely he understands by "certainty". This he unfortunately fails to do. To be *convinced* that a proposition is true is not equivalent to being *rightly* convinced. The language used by Dr. Dubs in the initial statement of his problem conceals this point. We often use the expression "we are sure that this proposition is true" to express a high degree of conviction, and yet this conviction may be mistaken. If by "certainty" be meant "a very high degree of conviction"—often called "practical certainty"—, then *certainty* is not the same as *knowledge*; if, on the other hand, to be *certain* is equivalent to *knowing*, then certainty does not admit of degrees, and is independent of any degree of subjective assurance. Dr. Dubs wavers between these two meanings of "certainty". Thus he says: "whether knowledge or certainty can be attained by the inductive method is partly a matter of the definition of knowledge. If we define the certain as that which cannot be doubted, it is, of course, not possible to attain certainty. . . . If by 'absolute certainty' is meant indubitability, there is no certainty, not even that we have a correct definition of it! But if, casting aside as bootless such a definition, we distinguish knowledge or 'absolute certainty' by the characteristic which some propositions have, that when they are thoroughly understood, together with their proximate and ultimate grounds (which includes the method of their proof), they compel the assent of every unprejudiced and experienced reasoner, we have a nominal definition of knowledge which is useful and which represents the highest attainable degree of certainty" (p. 349). Here it clearly seems to be the case that knowledge or certainty is taken to mean practical certainty, i.e. a very high degree of probability. But, if this be so, it is difficult to attach any meaning to the claim, made by Dr. Dubs, that science reaches "certainty" rather than "probability". Yet, it is precisely this that he is concerned to maintain. It does not seem possible to provide an answer to Hume simply by defining "knowledge" as the outcome of scientific method. The problem admits of no such easy solution since the point at issue is precisely whether such method is *capable* of yielding *what is ordinarily called knowledge*, or whether its conclusions can at best have only practical certainty.

The one and only proper method is said by Dr. Dubs to be "rational induction," by which he means what is usually called the method of

hypothesis. He gives numerous illustrations drawn from the history of science to show that this method has led to trustworthy results. Much that he says in this connexion is both important and true. But the present reviewer at least cannot admit that Dr. Dubs has justified his claim that the method of rational induction does not involve the fallacy of affirming the consequent. He thinks that he has, because he believes that "the deducing and verifying of a sufficiently wide and various range of consequents is sure to hit upon some unambiguous consequent or combination of consequents, and enable the certain establishment of their antecedent" (p. 233). He bases this belief on the assertion that "in a complex world, no two different rational antecedents, *when their consequents are fully drawn*¹ in all possible spheres of action, have exactly the same consequents, so that the correct antecedent can be discovered by an examination of a sufficiently wide set of consequents. Where two antecedents have the same consequents, the reason is either because the antecedents are not really different or because their consequents are not drawn fully enough." The consequents are said to be "drawn fully enough" when the hypothesis furnishes a wider set of verified deductions than the nearest possible alternative hypothesis. In accordance with this view Dr. Dubs is forced to hold that "verified" hypotheses cannot be proved to be untrue; they are merely shown to be limited in their application. His discussion of the relation between Newton's laws and Einstein's laws reveals the most serious defect in his conception of scientific method, namely, his failure to recognise the part played by fundamental concepts. Thus, with regard to the question of the perihelion of Mercury, he says, "it remained for Einstein's general theory of relativity to attempt to account more exactly for the discrepancy" (p. 259. See also pp. 278-279). But it is not merely a question of *greater exactness*, but of a fundamental change in the concepts employed. To this aspect of scientific theory Dr. Dubs appears completely blind. It is probably for this reason that Dr. Dubs misconceives the significance of the principle of simplicity, which, he says, "is misleading and logically false" (p. 288). He takes the principle to involve the assertion that "reality itself is simple". This, however, is clearly not the case. Had Dr. Dubs considered more carefully this aspect of modern scientific theories he might have realised that the problem of knowledge cannot be settled by the definition of "knowledge" in terms of "certainty".

Dr. Dubs's account of deductive inference is peculiar. He holds that all deduction is syllogistic, and that every syllogism consists of *five* propositions, *viz.* two "material premisses," the conclusion, and two "formal propositions". The two formal propositions are the canon, or principle, of the deduction, and the "validating proposition" (p. 158). When the canon is explicitly stated it is possible to include under the one form of syllogistic inference forms not traditionally recognised. But even Dr. Dubs has to admit a fundamental distinction between the two formal propositions and the two material premisses. The distinction is so fundamental that it is surely misleading to regard the formal propositions as part of the argument, or to define the syllogism as "reasoning that proceeds from two premisses to a conclusion with the help of two formal propositions" (p. 161). The validating proposition is of the form: "This canon is correctly applied to this syllogism and the conclusion is derived in accordance with it". Hence, "a validating proposition is always a singular proposition, which refers to 'this syllogism' and no other"

¹ Italics his.

(p. 187). Accordingly Dr. Dubs concludes that "the necessity of establishing the correctness of a validating proposition in each syllogism of a rigorous proof makes *purely* deductive demonstration impossible". It is, therefore, not surprising that Dr. Dubs should maintain that it is possible to achieve "demonstration" by the method of rational induction.

L. S. S.

Die Kunst. By BRODER CHRISTIANSEN. Felsen-Verlag, Buchenbach i. Br., 1930. Pp. 260.

This clear, simple and above all significant book on the significance of art is a valuable addition to the author's *Philosophie der Kunst*. It starts with the never sufficiently emphasised and indeed generally neglected distinction between the *grammar* of art and its *meaning* (different, of course, from conceptual meaning). Thus theories concerning rhyme schemes, prosody, proportion and symmetry, the structure of the drama or novel, or the different *genres*, so prominent in aesthetics, are grammatical questions merely, while sense-elements (colours, shapes, tones, material, etc.) and even the subject-matter of a work and qualities of the artist's personality belong to the vocabulary of art. Grammar and vocabulary are bearers of meaning with its logical elements and logical structure. There are two fundamental laws of aesthetic logic: (1) that of tension-relaxation or contrast or opposition, constituting the rhythm or pulse of art, its variety, its dynamic or time-element (shared also by the static spatial arts); (2) that of unity, of the self-identical and continuant throughout the variety, the structural and quasi-spatial element (shared also by the dynamic arts of time: music, poetry, the dance). Of tension the author establishes four modes which in his hands prove far more fruitful for the analysis of all the arts than the syllogisms do for that of thought. The analysis, applied with wide knowledge and fine sensitiveness, illuminates not only the classifications into the archaic, classical, Gothic and baroque but also individual artists and works. Unity, that which holds together the multiplicity and variety of a work, which in the midst of change and itself changing is yet from beginning to end realised as self-identical, that which Coleridge calls the esemplastic or coadunating power and which here is called style, is secured either by repetition of the similar or, more intimately and deeply, by co-operation in one function, in the way in which mouth, eyes and nose are unified in one smile. Here too as everywhere the detailed illustrations are most valuable. But by far the most important if not the central part of the book is that which distinguishes between the sense-elements and vocabulary of art and its meaning. All art is sensuous and must be grasped with the help of the senses, yet its meaning is only apprehended when we have got behind the sense-presentations. These are merely vocabulary and may differ from each other as much as the words of different languages while bearing a practically identical meaning. Thus a certain shade of blue and a circular shape are as sense-presentations merely dispartes but closely related in meaning, while two practically indistinguishable shades of yellow may be poles asunder in meaning. The meaning behind each art-vocable the author calls its inner tone. Vocables, each with its special inner tone, are: the different colours, lines, notes, vowels and consonants, shapes, complexes of these, objects both in nature and in representation, the material (wood, stone, etc.), technique, emotions, adaptation to purpose (in the case of architecture and implements), concepts,

ideals, personality of the artist, departures from the normal (e.g. the special quality of a phrase of Horace given it by a slight twist from its ordinary prosaic and legal use). It is obvious from this list that the vocables themselves are not all sensibles (e.g. concepts, philosophies, ideals). It is also obvious that, taken by itself, an art-vocable is ambiguous and has meaning only like a dictionary-word. It becomes univocal only in a context, and how this happens a special chapter explains. The treatment of vocables and of their inner tones covers such questions as that of the hidden correspondences which Baudelaire and others have found so striking (between blue and cold, colours and sounds, shapes and colours, animals or natural objects and human beings or emotions), the significance of metaphor and simile, the possibility of representational and non-representational art, natural beauty, the meaning of the sayings that art gives us the soul of things and that it is truer than life.

All this is excellently done and the author deserves high praise for distinguishing the meaning of art on the one hand from its grammar and on the other from its sense-elements, subject-matter and conceptual meaning (all these being merely its vocabulary). But he fails to distinguish the æsthetic apprehension from feeling, from emotional experience, and thus falls into the bottomless abyss of the æsthetics of feeling. True, he tries to disown "*Stimmungskunst*" and insists that an "inner tone" is quicker, less solid, more fugitive than a "*Stimmung*." But he will have it that the inner content of art is not the object of contemplation or of knowing; it is an experience, a living, like the satisfaction of passion, a "*Willenspiel*" introduced into the spectator after the stilling of his own will, which art must effect, a particular, confined to a particular time, strictly speaking unrepeatable. (But what in that case becomes of communicability and the possibility of criticism?) It is a pity that he has not considered this content as a universal manifesting itself alike in a colour, emotion or thought (as could be so well illustrated from his own many examples), which is yet as individual as any of its particular manifestations and which is like a spirit or personality. It is also a pity that, not content with explaining æsthetic pleasure as that of contemplation, he has added one more mystification to the many that befog the question of the pleasure of tragedy. This is supposed to be due to the satisfaction of the spectator's desire for death, self-sacrifice and heroism, all the more easily indulged in by him because after all it is not he who dies but the hero. Here the spectator must identify the hero with himself in order to sacrifice him for himself. But he also identifies himself with the hero and thus by *Einfühlung* experiences the pain of death or failure or sacrifice which is also essential to tragedy. Therefore the death of a Socrates or the Saviour who cannot feel pain at the prospect of giving up life cannot be tragic. (But if the *Phædo* and in a lesser way the epilogue to the *Apology* are not tragedy, then what is? And if the Gospels do not narrate tragedy, then what is their meaning?) All this is unconvincing as is also the refurbished but unimproved ancient theory that the pleasure in comedy consists of the satisfaction of suppressed desires for the forbidden, the unseemly and disgusting.

That art points the way to a sphere above ordinary experience is true. (The author however holds, perhaps rightly, that only some art does this.) The means whereby this is effected, including extreme realism, are ably indicated. But to be justified in saying that the life of art is the sporting and exercise of God and the training of his youthful faculties in preparation for more serious work, requires more theology and metaphysics than this

book contains. Too much capital is made of the "unconsciousness" of art. After all in what respects is the work of the mathematician, scientist or philosopher more "conscious" than that of the artist?

P. LEON.

Coleridge as Philosopher. By JOHN H. MUIRHEAD, M.A., LL.D., Emeritus Professor of Philosophy in the University of Birmingham. London: George Allen and Unwin, Ltd.; America: The Macmillan Co. Pp. 287. Price 12s. 6d. net.

THIS is an extremely interesting book, dealing with a subject about which very little has hitherto been known. It is also a very difficult book, however, to review satisfactorily; since most of what is now known about its subject is, to a very large extent, known only to its author. Prof. Muirhead discovered an exceedingly important manuscript by Coleridge in the British Museum; and I understand that the greater part of what he states in this book is based upon what he found in that manuscript. It is doubtful whether any one else now living has read that manuscript; and it is no longer accessible in this country, having been removed to America. It is to be hoped that it will soon be published there, just as Coleridge left it. But we may be sure that Prof. Muirhead has given a faithful account of what is contained in it. He has certainly succeeded in giving us a very clear and fascinating statement of the various aspects of Coleridge's philosophical thought; and it is evident that it formed a much clearer and more carefully elaborated system than has been commonly supposed. It has, of course, always been known that Coleridge was deeply interested in philosophical speculations, and especially in those that were initiated by Kant and his immediate followers in Germany; and that he was one of the very first who directed attention to them in our own country. Many have acknowledged indebtedness to him—among others, J. S. Mill; and he had at least one—T. H. Green—who might definitely be regarded as a disciple. But, on the whole, he has not been taken very seriously as a philosopher. It is to be feared that a good many readers have been repelled by the humorous account of his philosophical monologues that was given by Carlyle (who, indeed, appears to have been more influenced by Coleridge than he cared to acknowledge). Certainly Prof. Muirhead's book should go far to counteract any such unfavourable impressions. It is to be regarded as a part of the comprehensive study of English idealism on which he has been engaged for several years, and which is happily now passing through the Press.

The present volume contains nine chapters, dealing with different aspects of Coleridge's philosophy, viz., I., Philosophical Development; II., Logic; III., Metaphysics; IV., Philosophy of Nature; V., Moral Philosophy; VI., Political Philosophy; VII., Theory of Fine Art; VIII., Philosophy of Religion; IX., Conclusion. On all these subjects Coleridge's views are stated with considerable elaboration and great clearness. It is a delightful book, and full of instruction; but it would be impossible to deal with it as a whole, and it would be futile to attempt to give the cream of it, since it is all cream. Perhaps the best that can be done here is to quote part of the passage at the end, in which the significance of the idea of Individuality is emphasised as the central conception in the work of Coleridge.

'In nature individuality is not to be looked for in any self-sustaining atom or cell, but in the extent to which a structure is able to reach out to

and assimilate elements lying beyond the limits of its own space and time existence, and thus to link itself with the whole to which it belongs, while at the same time rounding itself off into a self-maintaining unit within a larger sphere. Towards such individuality, expressing itself in ever higher forms, all nature moves. . . . In human life the seat of individuality, now become self-conscious personality, is similarly to be sought for not in any centre of isolated and isolating feeling, but in the degree to which a man passes beyond the limits temporal and spiritual within which mere feeling confines him, and identifies himself, in thought, feeling, and action, with the larger life about him while remaining a self-integrating member of it. The infinite whole of which this larger life consists may be the only complete individual, the only completely comprehensive and self-sustaining being—therefore the only Person in the fullest sense of the word. But finite spirits may attain to a share in that fullness, in proportion as they approximate to its all-inclusive life. Life at its best is the will to approximation, perhaps in the end only an aspiration and a prayer, but "he prayeth best who loveth best," and love means this expansion expressed in terms of feeling.'

I have quoted this, partly because it gives a good specimen of the style in which the book is written, partly because it indicates the general view that is taken of human life and of the universe within which that life is carried on; but also because it seems to suggest a fundamental difficulty. The idea of an all-inclusive life appears, on the face of it, to lead us back to the view of Spinoza rather than to that of post-Kantian idealism. The latter seems to require the conception, not of all-inclusiveness, but of creative activity and real individuality. I could have wished that the distinction between these two views had been more definitely brought out. But perhaps to do this would have carried us somewhat beyond the text of Coleridge. It is well known that he was a good deal influenced by Spinoza. So, indeed, have most of the later idealists been; and it may be doubted whether the result is altogether clear. But, at any rate, we have every reason to be well satisfied with the luminous summary that Prof. Muirhead has given us.

J. S. MACKENZIE.

Belief Unbound, A Promethean Religion for the Modern World. By WILLIAM PEPPERELL MONTAGUE. Newhaven: Yale University Press, 1930. Pp. 98. 7s.

I have found these 'Terry Lectures on Religion in the Light of Science and Philosophy' extremely interesting. For Prof. Montague neither beats about the bush nor wraps his meaning up in obscure and ambiguous language, but speaks out with a candour which is as rare as it is refreshing both among philosophers and among theologians. If the other Terry Lecturers follow his example, they will contrast favourably with the ordinary run of Gifford Lectures. Prof. Montague devotes his first chapter to defining religion and describing the ways in which the modern spirit undermines its traditional forms. It will not do to conceive 'God' either as "nothing but an ideal lacking objective existence" nor as "nothing but ultimate reality" (p. 5). To mean anything effective Religion must mean "the possibility that what is highest in spirit is also deepest in nature . . . in the universe itself" (p. 6). So in raising the question of the truth of Religion "a momentous possibility is at stake. We have

a great hope shadowed by a great fear"—the fear that "the belief in a cosmic power for good may have no other grounds than the yearning of cowering human hearts" (p. 7). Since he thus makes the notion of *good* fundamental to religion, Prof. Montague will not hear of basing morality on religion, and unhesitatingly opts for the second horn of the ancient dilemma whether a thing is good because God ordains it or God ordains it because it is good. "Unless the ideal of goodness is for God, as for us, eternal in its own right, irrespective of anything in the world of existence, morality can have no ultimate significance" (p. 64). So "religion as the foundation of morality should be abandoned, as indeed it is being abandoned." However, it may become "the supplement and sequel to morality instead of its illegitimate and precarious basis" (p. 65). This is Prof. Montague's 'Promethean' view, for which religion is "neither certainly and obviously true, nor certainly and obviously false, but possibly true, and, if true, tremendously exciting" (p. 66). It raises the two great problems of Good and of Evil. "How can the amount of evil and purposelessness in the world be compatible with the existence of a God? And how can the amount of goodness and purposefulness in the world be compatible with the non-existence of a God?" (p. 68). Now the attempt to ascribe both infinite power and perfect goodness to God breaks down. Any omnipotent God must *will* the occurrence of evil. It is useless to call it a mere negation, or illusion, or disguise. For if it is, *our* failure to realize this will be the *real* evil. But a 'God' who wills evil becomes a devil. So none of the traditional explanations of evil explain it in theory, while they are all open to the practical retort that "if evil is really nothing, it is nothing to avoid" (p. 68-9). So there can be no omnipotent God. Yet the fact that "the world contains a quantity of good far in excess of what could be expected in a purely mechanistic system" (p. 70) suggests the hypothesis of a cosmic mind. This mind is to be conceived as *life-affirming*, and as having no fixed end but merely "a maximum increase of life itself" (p. 84). So for this 'Promethean' God "as for us, goods are relative, variable, and growing" (p. 85), and religion will be "a contact with something other and infinitely higher" (p. 92); for this "high romance" then, let us live!

Even an unsympathetic critic would have to admit that Prof. Montague's attitude, thus outlined, yields both a possible and a lofty form of religion, while to me it seems the only type of religion worth having. I would add, however, a couple of footnotes. In the first place, I fail to see the need for Prof. Montague's complete 'this-worldliness'. To whatever degree one may imagine human powers of intelligent control of the conditions of life to be exalted, many of the evils of life (including death) seem to be too firmly rooted in the world's structure for their eradication to seem conceivable. So the world will always afford occasion for the postulation of another and better world. Secondly, the principle of such postulation can hardly be repudiated. Is it not the principle of Prof. Montague's belief in an all-pervasive power that makes for good? And is it not the principle also of all enterprise in cognitive activity? Do we not in all the sciences postulate our hypotheses before we prove them? But for intellectualistic prejudice, the recognition of a will to believe would seem to be inevitable; though of course this will should not be taken for the deed of actually verifying our hopes.

F. C. S. SCHILLER.

Fragen der Ethik (Schriften zur wissenschaftlichen Weltauffassung). By MORITZ SCHLICK. Vienna: Julius Springer, 1930. Pp. iv., + 152.

This book restates the case for a modified form of hedonism. Both supporters and opponents of such doctrines should recognise its very considerable merits; it effects some important advances on the older hedonism, and is remarkable not only for its ability but for the still rarer virtues of clearness and conciseness. That it makes big assumptions and does scant justice to the case for opposite views is perhaps inevitable from the plan of the series to which it belongs.

The way in which the author tackles the problems of ethics is determined by his general attitude to philosophy. He will only recognise as true what is empirically verifiable and assumes on the strength of his logical investigations that all *a priori* judgments are mere tautologies. It follows from this that ethics must be a branch of psychology; it should deal not with supposed objective values but only with our actual valuing. For it is only this that can be verified in experience, not the objective values to which right valuations are supposed to conform. Also valuation is for the author a matter of feeling, pleasant or unpleasant. All these views are here rather assumed by him to be true, no doubt on the basis of his general philosophy, than justified by argument; but we must not expect too much in a hundred and fifty pages, and it is indeed remarkable how many problems he has handled effectively (at least from the point of view of his own philosophy) in such a small space.

Hedonistic psychology is defended in the sense that it is always the idea (*Vorstellung*) most pleasant, or least unpleasant, to me at the moment which moves me to action. This is sharply distinguished by the author from the view that the only possible object of desire for me is a state of pleasure in myself; for there are many other things besides my own pleasure of which the idea may be pleasant to me. In fact he goes so far as to hold that one's own pleasure as such is not a possible object of desire at all, on the ground that no one can make a sensible image of such an object. This form of hedonistic psychology possibly represents a more plausible doctrine than the older type and one less difficult to reconcile with any ethics at all. Nevertheless it still fails to meet adequately the case of self-sacrifice or of action in the line of greater resistance. The author says that great self-sacrifices are made under the influence of an emotional zeal (*Begeisterung* is the German word used) and that such an emotional state is in itself highly pleasant; but I do not envy him the task of showing that in case of voluntary sacrifice this is always *more* pleasant than the fear of great suffering or loss is unpleasant.

It is not obvious that this psychology need result in a hedonistic system of ethics, because, as the author recognises, even if an idea is pleasant its cause may conceivably be something quite different from my own or anybody else's pleasure; but he proceeds to establish such a hedonistic ethics in the only sense and by the only method which his philosophy allows. He had denied all objective values, therefore what is valuable means for him simply what people do value in fact, and he makes the psychological generalisation that the actions which most people value are only those which they think lead to pleasure and that this is the reason of their valuation, so he concludes that pleasure is the only good. (In taking this line he seems to have changed the meaning of value from 'what anybody values' to 'what most people value'.) The views which conflict with Utilitarianism are dismissed as mere exceptions due to association, and the philosophical

arguments which have been brought against it are almost entirely ignored. The hedonistic calculus is, however, rejected on the ground that pleasures cannot be compared quantitatively in the way required, *e.g.* we cannot say that one pleasure is three times as great as another; the "greatest pleasure of the greatest number" is dismissed as a useless and meaningless formula.

The problem of freedom is met in a very able and lucid chapter by the distinction between law as coercive and law as a statement of what always happens. The fact that I am governed by causal laws only appears to interfere with my freedom because causal laws are wrongly confused with laws of the state. Finally, in his last chapter the author strongly maintains the view that the altruistic impulses are those most conducive to the pleasure of the individual who is guided by them himself, and not only to the pleasure of others.

A. C. EWING.

The Inner Sentinel: A Study of Ourselves. By L. P. JACKS. London: Hodder & Stoughton. Pp. 288.

In philosophy, as in religion and in science, there is a perpetual struggle going on between those who want to humanize the subject and to bring it down into the hearts and homes of men, and those who endeavour to elevate and desiccate it in order that they may be enabled to look securely down upon servile masses of laymen from high watch towers impregably fortified with the barbed wire of technicality. In the academic world exponents of the latter policy usually prevail, though often at the cost of *killing* the subject on which they are parasitic and so ultimately committing suicide. The readers of Dr. Jacks's former books, however, will have no doubts on which side they may look for him. No writer on philosophy has greater powers of popularization of the very best sort, which is able to expound even its worst puzzles in simple, clear and attractive language, without detracting in the least from the firm texture of the thought. In his present volume Dr. Jacks may be said to have surpassed himself. For nothing could be put more simply than the twenty short lessons which compose his book; few things also could strike deeper. For Dr. Jacks has scant respect for the humbug of the 'genteel tradition' which shuts its eyes to the human side of philosophy. He sees through the stale humbug of 'purely theoretic' knowing (pp. 161, 236). He sees that every doctrine *does* something (good or ill), if it *means* anything (p. 108 f.). He sees also that every doctrine has a *personal* context, in which it must be taken if its real meaning is to be understood (pp. 189 f., 198). He sees that we think as whole men, and not only with our 'mind' or intellect (p. 124). He sees how easily philosophers become "victims of mere words" (p. 111). He sees that the truth-seeker has to bestir himself not merely to find the truth but also to fight the lie (p. 192 f.). And from him even the most timidly conventional of philosophers may learn that courage is not merely a moral but also an intellectual virtue, and sorely needed when it is realized that the life of man and of man's society is a "death-ended" affair, and that "they reckon ill who leave this out" (p. 286).

I have only a few comments to make. Dr. Jacks's suspicion (p. 109) that pragmatists would claim finality for their present doctrines, like the other philosophers, is not, I think, justified by anything they have anywhere said, and indeed would run counter to their principles. For in claiming truth for their doctrines they affirm their belief that they are *better*

than others extant. This surely is sufficient for the day: if hereafter still better ones become available, pragmatists should surely be the first to adopt them, as working better than their present views; the more so that they could always be represented as developments of the latter. Dr. Jacks's comments on the issue between freedom and determinism admirably expound H. V. Knox's profound but not quite easy book *The Will to be Free*; but ought he not to have declared (with James) that a logical situation which leaves both parties free to choose the alternative they prefer is a recognition of real alternatives, and so in effect a decision in favour of libertarianism? And could not the paradox of this situation have been alleviated by pointing out that similar alternatives arise all over the field when a philosophic problem is completely thought out? The choice between optimism and pessimism is the most glaring example; but the secular survival of all the big philosophic issues really teaches the same lesson and so should really be the best attestation that no answer is ever literally *cogent*.

F. C. S. SCHILLER.

The Laws of Feeling. By F. PAULHAN. Translated by C. K. OGDEN. London: Kegan Paul, Trench, Trubner & Co., Ltd. 1930. Pp. xiv + 213. Price 10s. 6d. net.

PAULHAN is an epiphenomenalist. He believes that there are minds as well as bodies, and that all mental events are caused solely by bodily events. The mind, if we may borrow a phrase, is merely the body's steam-whistle. The first French edition of this book was therefore sympathetically reviewed in *MIND* in 1887; and, so far as its epiphenomenalism is concerned, the present translation will be popular in 1931. Paulhan is fortunate in having escaped the intervening years with their violent attacks on epiphenomenalism both by those who thought that it unduly degraded the mind and by those who more recently supposed that there were no minds at all. He is less fortunate in thinking that, if epiphenomenalism be true, it necessarily follows that "every psychological study is a physiological study, and we study the brain in studying consciousness" (p. 11). This conclusion is not entailed by epiphenomenalism and is plainly false.

Paulhan's particular views about feeling, which were carefully summarised in the earlier review, also accord with the present. Explanations of feeling by reference to physiological processes are now much in fashion. But in at least two important respects Paulhan's treatment runs against the results of more recent investigations and theory. In the first place, he holds that every conscious event is a sign of some disturbance in the bodily organism, and that all "affective phenomena" are signs of some considerable imperfection or disorder. Thus, according to Paulhan, the whistle never blows unless there is something wrong with the engine, and when it blows in a feeling way there is always something seriously wrong. But it is pretty clear that feeling accompanies the satisfaction as much as the obstruction of tendencies, although it takes different forms in the two cases. In face of the work of McDougall, Allen and others, Paulhan's view that only defects in bodily activity give rise to feeling seems clearly unbalanced. Secondly, his division of feelings into three classes now seems not only picky but also mistaken. There are certainly differences between passions, emotions and sensory feelings. But it is highly doubtful whether they are differences in hedonic tone. There is now an increasing tendency to hold that pleasure and pain are the only modes of feeling, and that one

pleasant (or painful) mental state differs from another only in respect of its non-hedonic qualities.

Nevertheless this book deserves to be read. Much of its value lies in its detail, since Paulhan's capacity for minute introspection is immense. "The good and ingenious psychological analysis", which *MIND* noticed forty-three years ago, still remains, although it is now described by Ogden as "the subtle and sinuous spiral of Paulhan's exegetic". And everyone will be glad that the book also includes a translation of Paulhan's two articles (1920) on *La sensibilité. L'intelligence et la volonté dans tous les faits psychologiques*. But is it really necessary to translate French books on psychology? Surely whoever reads them in English could have read them in French?

REX KNIGHT.

God and Man. By HASTINGS RASHDALL, D.D., D.C.L., D.Litt., F.B.A.
Selected and Edited by H. D. A. MAJOR, D.D., F.S.A., and F. L. CROSS,
M.A., B.Sc. Oxford: Basil Blackwell, 1930. Pp. 264. 6s. net.

The death of Dean Rashdall removed from our midst the ablest exponent of the philosophical side of theology that the present generation has known, and we may be grateful to the editors for giving us this third volume of his posthumous papers, for it contains matter that was well worth embodying in more permanent form than those in which it originally appeared. Eleven essays are contained in the volume. The first deals with the Ultimate Basis of Theism. This is the most considerable essay, occupying nearly a quarter of the book. Those acquainted with Rashdall's writings will expect and find a defence of Idealism, and an argument that a Universal Mind is indicated thereby. He then proceeds to the idea of causality to argue that this mind wills. He thinks that such a mind should be called "personal", and as he holds that the objections to attributing personality to God arise from an unwillingness to think of God as other than "annexed by some unintelligible fate to a world quite alien to his own inner nature as to some Siamese twin from whom he would perchance, but cannot, part", he passes therefrom to discuss the relation of God to the world and to other spirits. From this hitherto metaphysical course he proceeds to the moral issue, and to conscience. Finally he passes from the rational arguments for Theism to the Christian revelation of God, and its relation to general theistic belief. Altogether the essay affords a characteristic example of Rashdall's mind and methods, and a singularly clear and persuasive statement of the Theistic position.

The next three essays are more theological, two being concerned with Christology, and one with the Trinitarian doctrine of God. Then come a statement of the moral argument for immortality, and two ethical studies dealing with justice. Three sketches of writers who made an appeal to Rashdall, follow. They are Thomas Aquinas, Nicholas De Ulricuria, and Butler. Rashdall calls Nicholas "a mediæval Hume", though he might also be called a mediæval Berkeley. Nicholas was an amiable sceptic, sufficiently accommodating to abjure what he wrote, when it was unacceptable, and thus to gain a Deanery two years afterwards, which was more to his liking than a stake. He has received less notice, however, from historians of philosophy than he deserves, for he certainly got more than a glimpse of the idealistic position, which he expressed in these words: "De substantia materiali alia ab anima nostra non habemus certitudinem evidentie". He did not develop the thought particularly, and indeed

seems like Hume when he remarked "Though I throw out my speculations to entertain the learned and metaphysical world, yet in other things I do not think so differently from the rest of the world". Nicholas similarly seems to have dabbled in scepticism as an amusement rather than with serious intent.

The final essay is upon "The Greatest Need of the Church", and is in fact a sermon, preached from a text that came near to Rashdall's heart; "Add to your faith virtue; and to your virtue knowledge". It is characteristic that he held the greatest need of the church to be a more courageous meeting of the intellectual difficulties of the day. As the sermon was preached in 1921, it refers to a state of things which is still amongst us. Few will dispute the truth of the criticism that a year in a theological college after graduation is not enough to give equipment for the needs of a modern clergyman, and it is difficult to deny that, though "fundamentalist" doctrines are not held by any more than a remnant of the clergy to-day, there has been considerable over-caution in stating what is believed, with the result that many credit the clergy with more obscurantism than can actually be found amongst them. Rashdall was by nature and conviction a "rationalist". He had a mistrust of the mystical, and a stout faith in logic. The amazing diligence of the man is shown in the fact that beside his considerable published work, he left a thousand sermons and a hundred papers. His kindliness is recalled to the present writer, who, as a young student and an entire stranger to Rashdall, wrote to ask about a point in one of his books. The reply, written in an almost undecipherable hand, covered four pages and then was cross-written over them. It ended with an invitation to come to Oxford and discuss the point. The man who is ready to treat an unknown student as an equal, and to justify himself to him, is not likely to be anything but candid in setting forth his own views, and Rashdall was as honest in stating what he believed, as in trying to do justice to what his opponents believed. He has left a gap in religious philosophy that is not easy to fill, and one can but be glad that these papers have been preserved, to add to our debt to a great theologian.

E. S. WATERHOUSE.

The New Humanism. By LEON SAMSON. London: Williams & Norgate, 1930. Pp. vii, 320. 12s. 6d.

It is clear that 'Humanism' continues to commend itself as a philosophic catchword. Mr. Samson's use of it would seem to be the fifth of those now current, and is fortunately distinctive enough not to lend itself easily to confusion with its four predecessors. It manifestly differs alike from the literary revulsion from the barbarism of the medieval schools and the return to classical and particularly Greek models which marked the Renaissance, from the epistemological 'humanism' which opposed itself both to 'absolutism' and to 'naturalism,' from the religious sense as a synonym for 'positivism' (in America), and from the protests of Prof. Babbitt and his friends against the trend of American education. Mr. Samson's 'humanism' also is an American invention, but he means by it the intellectual outlook of a highly class-conscious modern communist. His critical survey of modern institutions is not uninteresting, though he gets very vague and wild when he indulges in apocalyptic visions of the communist millennium. Philosophically he need not be taken seriously, although he opens with a chapter on 'the dilemma of Pragmatism'. It

is very slight, and its insight may be gauged by its considering the fiction-alism of Vaihinger as a *less* sceptical and extreme form of pragmatism than the doctrines of James and Dewey. Epistemological 'humanism' he has just heard of (p. 10). The philosophy of Art, for which he claims originality, consists in affirming that "art is the material embodiment of the social essence of an anti-social world; that it owes its origin to the birth of property; that its function is to achieve an imaginary reunion of the individual with Society from which he has been torn by the competitive egotism of the property régime; that its destiny is to disappear with the disappearance of property" (p. 191). *Ex pede Herculem!*

F. C. S. SCHILLER.

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VIII.—PHILOSOPHICAL PERIODICALS.

PROCEEDINGS OF THE ARISTOTELIAN SOCIETY, 1929-30. N.S. Vol. xxx.

J. Laird. Presidential Address: 'Concerning Epistemology.' [A discussion of the claims of epistemology to be regarded as the primary and fundamental philosophical discipline. The types of view represented by Locke and Kant, and the arguments on which such views may be based, are briefly reviewed and criticised. The address would no doubt furnish plenty of material for discussion, for the brief criticisms given would hardly satisfy any one who held the type of view against which they are directed.]

A. Boyce Gibson. 'The Eternal Verities and the Will of God in the Philosophy of Descartes.' [A discussion of the way in which D. conceives the eternal verities to be related to the will of God, the clue being that in God there is an absolute unity of intellect and will. The bearing of this fundamental conception on the rest of D.'s philosophy is then shown.]

C. V. Salmon. 'The Starting-Point of Husserl's Philosophy.' [Perhaps the writer of the paper reckoned on some previous knowledge about 'phenomenology' on the part of his hearers, otherwise the exposition must have been somewhat difficult to follow. He tells us about 'phenomenology' in its own technical language, and contrasts it with logic and psychology, but does not convey any very clear idea of what this new philosophical science is trying to do.]

T. Greenwood. 'Invention and Description in Mathematics.' [A protest against the idea of mathematics as consisting essentially in a series of deductions from a few elementary concepts which have been defined once for all. The process of discovery in mathematics is regarded as being much more like that in the physical sciences: the nature of mathematical objects is inexhaustible.]

G. Ryle. 'Are there Propositions?' [A discussion of the view that there are subsistent 'propositions'. First, a comprehensive statement is given of the arguments that may be advanced in favour of the view; second, a statement of objections to the view—although the writer does not claim that they amount to a final refutation—and third, suggestions are made towards a view which, by solving some of the problems that led to the formulation of the 'proposition' theory, would enable us to dispense with the latter. A clearly-written and useful discussion, whether one agrees with all its points or not.]

G. Cator. 'The Logical Foundations of our Knowledge and the Infinite Regress of Proof.' [In this paper the writer admits that he is struggling with ideas which he cannot bring together into a satisfactory synthesis, and certainly it is not easy to see clearly what he would be at. Adhering in the main to Bosanquet's logic, he nevertheless, under the influence of Spir and Meyerson, 'aspires to reinstate the principle of identity in a metaphysic of self-sameness'.]

H. J. Paton. 'Is the Transcendental Deduction a Patchwork?' [A criticism of Vaihinger's dissection of the Transcendental Deduction (in the first edition of the *Kritik*). It is first argued on general grounds that the criterion used by V. for discriminating the supposed loose materials, and determining their

time-order, is a very questionable one. The main features of V.'s analysis are then stated and examined, and his view especially of the second Section of the Deduction is criticised in more detail, and contrasted with the view of the Section which Kant's own statements and line of argument would suggest. The conclusion is that the 'geological' hypothesis of 'strata' in the Deduction, as formulated at any rate by V., is unnecessary and untenable. Kant's argument "is a whole and not a patchwork of unrelated incongruities".] **G. Castaner.** 'The Ideal and the Real.' [The first part of the paper argues that religion as based on 'human yearnings' is gradually being displaced by scientific knowledge; the second part argues in favour of "an objective idealism not dissimilar to that of Fechner". The philosophising in both parts is somewhat crude.] **S. Alexander.** 'Beauty and Greatness in Art.' [The main object of the paper is to emphasise the distinction in a work of art between formal beauty in the handling and the magnitude or greatness of the subject. A greater and a smaller subject may alike be beautiful, but the greater subject must rank higher in the scale of magnitude. We thus seem to have a double standard: but in a supplementary note it is pointed out that the achievement of beauty in the greater subject "implies a greater reach of artistic skill"; the great artist "has worked more largely and profoundly to secure his end".] **Dorothy Wrinch.** 'Scientific Method in some Embryonic Sciences.' [The sciences referred to are industrial psychology, the study of the growth of young children, and the kind of sociology that is cultivated by the Sidney Webbs. The writer of the paper seems to attach a somewhat exaggerated value to classification, 'the shufflings and re-shufflings' of sheets of paper recording each a single fact.] **E. S. Waterhouse, C. E. M. Joad, and J. L. Stocks.** Symposium: 'Evil and the Theistic Hypothesis.' [Joad holds that the ideas of good and evil are 'simple, indefinable, and unanalysable', and this opinion has its natural effect in limiting the scope of his contribution to the discussion, but the other two papers are much more interesting. Waterhouse's main point is that it is only for theism (defined in a wide sense) that the problem of evil exists as a problem at all, so that the problem can hardly be used to disprove the hypothesis. Stocks, after some criticism of the other two papers, first discusses evil as a feature of human experience, and then considers briefly whether our experience of good and evil fits in better with a naturalistic or a theistic view of the universe; he decides in favour of the latter alternative.] **E. F. Carritt.** 'Thinking makes it so.' [A short paper on the question whether what is right can be affected by what the agent thinks right. Some of the difficulties raised seem rather artificial, e.g., the supposition of a person having debts which he has completely forgotten 'through no fault of his own'.] **L. Susan Stebbing.** 'Concerning Substance.' [The paper first states the Aristotelian conception of substance, then enters upon a long criticism of Whitehead's most recent views about what he calls 'actual entities', and finally discusses Johnson's conception of the 'Continuant'. The reader may be inclined to ask why so much time should be devoted to Whitehead's latest views when these are found to be involved in 'hopeless confusion' and 'flat contradiction'. The last pages of the paper are rendered obscure by the use of unexplained Cambridge technicalities.]

REVUE DE MÉTAPHYSIQUE ET DE MORALE. xxxvii^e Année. No. 1, January-March, 1930. **Ch. Andler.** *Le dernier enseignement de Nietzsche.* [The concluding chapter of the sixth and last volume of a monograph on

Nietzsche, his Life and Thought. According to the author, "Nietzsche takes up the unfinished work of Hegel and discovers in the history of civilisations a philosophy of Nature". The thought of Nietzsche finds its inspiration in history, in the career of Napoleon, in the Italian Renaissance, in Greece of the sixth century B.C.; in science, in the concept of energy borrowed from the physicists, the concept of the unconscious taken from the psychologists, the concept of evolution adopted from biology. Nietzsche's intelligence is at once "mystic, lyrical, and tyrannical". Comparing him with musicians, the author goes so far as to say that Nietzsche is "a Wagner who, going as far as Debussy, was on the point of surpassing the latter in order to rediscover, with Ravel, some of the constructive secrets of Rameau". This may serve to illustrate some of the daring, not to say far-fetched, analogies in which the author indulges.] **J. Perrin.** *La chimie physique.* [A brief summary of the fundamental concepts of physical chemistry, delivered as a lecture at the École Normale.] **D. Parodi.** *Le rationalisme et l'idée de Dieu.* [Begins by pointing out that, contrary to what might have been expected, the experience of the Great War, so far from weakening, has revived, interest in the concept of God. What, then, is to be the attitude of a thinker who takes his stand on reason and not on faith? Positivism and Naturalism can neither account for the place of the human mind itself in the universe, nor disprove the concept of a fundamental spiritual activity in which all things are rooted. "Modern philosophy must be idealist or nothing: and idealism cannot get on without positing Thought as the absolute." Hence the decisive proof of God is that there is no reality except through thought; that thought contains within itself the distinction of truth and falsity; that truth is founded on a spiritual activity eternally present to itself and self-multiplying, "pure act and thought thinking itself". In short, it is the concept of God developed by M. Léon Brunschvicg.] **Jeanne Renaud.** *À la recherche de la société.* [An acute and searching criticism, supported by analysis of empirical examples, of the theory of mob-psychology developed by Le Bon and others, and often applied to the explanation of social behaviour. The writer points out that men ordinarily only join crowds whose interests they share, and that the crowd atmosphere only releases, and gives an opportunity for expressing, impulses which the individuals already bring with them in joining the crowd. She goes on to argue for the necessity of distinguishing between the concepts of "the collective" and "the social".] **P. Tisset.** *Les notions de droit et de justice.* [Traces the sense of right to its psychological origin in the fact that every human impulse is, as it were, self-approving, so that any opposition to it, or interference with it, is felt as a wrong done to the personality. This primitive concept of right becomes modified and developed in society by the concepts of identity and equality, though the concept of justice, thus arrived at, will have different concrete embodiments in different social systems.] *Études Critiques.* **J. Wahl.** *Le Journal métaphysique de Gabriel Marcel.* [A long critical appreciation of this work.] *Questions Pratiques.* **G. Gurvitch.** *Socialisme et Propriété.* [Socialism is not opposed to private property as such. It fights only against the perversion by which property in things gives one man power over other men. This being the essential principle, the target of Socialism must vary with the development of new forms of property, and therefore of economic power, and its entrenchments in institutions and laws. From this point of view, the author submits some of the inconsistencies in contemporary socialist thought to searching criticism, with special reference to the socialist conception of the function of the State, the self-contradictions

of decentralising collectivism, the vicious circle of syndicalism, the difficulties besetting guild-socialism. The author shows a good acquaintance with the relevant English literature.] Reviews of new books, French and Foreign. Obituary: Gustave Belot.

xxxviii^e Année. No. 2, April-June, 1930. **E. Meyerson.** *Le sujet et le prédicat.* [An extract from a forthcoming work, entitled *Le Cheminement de la Pensée*. Beginning with a historical survey of logicians who have either supported, or tried to refute, Antisthenes' contention that the categorical judgment, in which a predicate is affirmed of a subject, expresses an identity which yet contradicts the diversity of subject and predicate, Meyerson goes on to a re-statement of the view already expounded by him in his previous books, viz., that the movement of thought proceeds always through an identification of differences, even in the apparent tautologies of mathematical reasoning. Purely identical reasoning would be completely static and unprogressive. In thinking about data of experience, in trying to rationalise them by interpretation, we cannot move a step forward except by identifying different, yet this very fact introduces an irrational element into all our thinking, as F. H. Bradley clearly recognised.] **R. Berthelot.** *Sur quelques philosophies des sciences dans la France contemporaine.* [This article is an elaboration of lectures given in 1928 at Tokio and Kioto. It deals briefly with M. Léon Brunschvicg's philosophy of Mathematics and Mathematical Physics, and with M. Bouglé's philosophy of the Social Sciences, and thus leads up to a more extensive statement of M. Berthelot's own views, which are chiefly concerned with the elaboration of an "evolutionary rationalism". Reason is essentially dialectical, and its dialectic may be equally mathematical and experimental. Behind such terms as space, matter, life, mind, evolution, and therefore behind the differences in subject-matter between such sciences as geometry, physics, biology, psychology, lie certain pervading "types of order" which determine the "laws of reason" as a "mental dynamic". The conclusion suggests that reason is a cosmic principle surpassing any single individual, society, or even the whole human race, and only the existence of such a reason holds out any hope of an ultimate spiritual union of all mankind.] **J. Milman.** *La théorie psychologique et logique du jugement.* [Sets itself to distinguish clearly between the psychological and the purely logical aspects of judgment. Finds the latter in (a) the "sense" and (b) the act of "positing" (*setzen*). Sense, in turn, is identified with the purely formal elements in judgment, i.e., with "the ensemble of acts and functions which we apply to the data of sense-experience". These formal elements can be symbolically exhibited. The author gives a sketch of his own symbolism which follows in general the pattern prevailing among mathematical logicians. He finally reaches, however, two formulæ of his own which he names, respectively, (1) "the formula of Parmenides", viz., $\delta q = q$, meaning: the idea of an object is identical with the object itself; and (2) "the formula of Spinoza", viz., $\delta s \supset \delta p = s \supset p$, meaning: the order and connexion of things is the same as the order and connexion of ideas. He adds the proviso that neither formula applies to propositions which are false.] **J. Herbrand.** *Les bases de la logique hilbertienne.* [A brief article attempting to exhibit how Hilbert has carried forward logical theory beyond the point reached in *Principia Mathematica*. According to the author, the aim of Hilbert's theory is solely to examine mathematical systems already in existence and to study the characteristics of the propositions which are true in each system. The result is a highly general theory to the effect that, if we reason in such-and-such a way, our results will possess such-

and-such properties.] *Questions Pratiques.* **H. Urtin.** *La crise du jury criminel.* [Compares the actual working of the jury system in modern France with the theoretical expectations which led to its introduction in the days of the French Revolution. Points out that the conditions under which it was introduced and which made for such success as it had, have largely disappeared with the social changes in modern France. Suggests that criminal cases involving foreigners should not be handled by juries at all, and that in cases involving only Frenchmen, the judge or magistrate should guide the deliberations of the jury, somewhat on the analogy of an English judge analysing the evidence for the jury and instructing it concerning the points on which it has to decide.] Reviews of new books, French and Foreign. Analyses of Periodicals.

xxxvii^e Année. No. 3, July-September, 1930. **L. Brunschvicg.** *De la vraie et de la fausse conversion.* [The first instalment of a reply to the critics of his *Progrès de la Conscience dans la Philosophie occidentale*. The "true and false conversion" is an allusion to the two ways in which, according to Plato, *Republic*, Book vii., 518A, reason may be temporarily blinded, viz., by turning from darkness to light (true conversion) and by turning from light to darkness (false conversion). The author's aim in his book was to trace the manifestations of reason, in the Platonic sense, in the modern world. He found them chiefly in the mathematical sciences which, steering between an arid Positivism amassing empirical facts, and a Mysticism begetting superstitions, reveal progressively the logical structure of the universe. Claims that Cantor and Einstein are understood by fewer contemporaries than were Descartes and Newton, and that reason is further than it was from establishing "the unity of humanity in peace and liberty". Tries to show that his various critics have in various ways failed to understand his conception of reason which has more affinity with Bergson's concept of *durée* than with a dialectical manipulation of concepts after the manner of Hegel or Hamelin.] **V. Delbos.** *La préparation de la philosophie moderne. Deuxième leçon : Caractères généraux de la philosophie moderne.* [A further instalment of Delbos's posthumously published lecture notes on the history of modern philosophy. This section deals partly with Leonardo da Vinci and Galileo, partly with Machiavelli and other political and legal thinkers.] **Th. Ruysen.** *Le Dieu lointain et le Dieu proche.* [A reply to D. Parodi's article on *Le rationalisme et l'idée de Dieu* in the January issue. Begins with an elaborate criticism of Parodi's idealism by means of the usual anti-idealistic arguments. Goes on to distinguish two functions of the concept of God, viz., (a) as principle of explanation, (b) as the spiritual companion with whom the soul in religious ecstasy feels in communion and inner union. The former is the "far away", the latter the "near" God of the title. In both senses, the author holds a belief in God to be justifiable. The real problem is whether these two senses can be reconciled; whether the two Gods can be identified. The problem of evil seems to the author to put insuperable difficulties in the way of such identification, but he ends with the suggestion that this does not matter much so long as man, in his "effort to create new values", feels himself "rooted in the depths of a spiritual life which transcends, supports, and nourishes him".] **J. Bois.** *A propos de l'idée de Dieu et du rationalisme.* [Another reply to Parodi, pointing out with acute dialectic how Parodi hovers uneasily between a pantheistic and a personalistic tendency. Puts clearly the choice between a personal and an impersonal God, and argues strongly that only the former will adequately meet the needs of the religious, moral, and philosophical consciousness.] *Études Critiques.* **G. Grua.** *Un critique*

du transformisme : Louis Vialleton. [The death of Vialleton and the appearance of his last work, *L'origine des êtres vivants*, is made the occasion of a comprehensive review of his attack on the Darwinian theory of evolution, which runs through all his work as embryologist and morphologist. A competent observer and experimentalist, Vialleton finds the Darwinian theory at every important point in conflict with the empirical facts, and himself is driven to a teleological explanation on Aristotelian lines and to a concept of "creation" which the reviewer compares with analogous concepts in the theories of Bergson, Le Roy, and others.] Reviews of books, French and Foreign. Analyses of Periodicals. Notes.

xxxvii^e Année. No. 4, October-December, 1930. **M. Blondel.** *Pour le quinzième centenaire de la mort de saint Augustin : L'unité originale de sa doctrine philosophique.* [Claims that the inwardness of Saint Augustine's philosophy has been widely misunderstood through taking partial and superficial views of it. *E.g.*, Descartes' *cogito, ergo sum* is only superficially analogous to Augustine's *si fallor sum*, just as Malebranche's "seeing all things in God" has only verbal affinities with Augustine's *ubi inveni veritatem, inveni Deum*. The centre of Augustine's thought is the union of speculative insight with moral purification and ascetic humility through the direct experience of Divine illumination, which is at once the source of all intellectual evidence and the fountain of spiritual regeneration. *Tu forma mea, Deus*, is Augustine's formula both for the intellectual apprehension of truth and for the power to subdue the passions of the flesh.] **L. Dugas.** *Des hypothèses représentatives ou de la logique imaginative.* [Examines the distinction between two kinds of hypotheses, *viz.*, representative and explicative, and comes to the conclusion that, after distinguishing from the former purely "figurative" hypotheses which are mere "devices of exposition", the difference between representative and explicative hypotheses becomes, not one of kind, but solely one of degree, for "to explain" is merely "to find that representation of facts which best satisfies the mind". Every representation is, so far as it goes, an explanation, and no explanation explains except so far as it offers an imaginative scheme.] **M. Halbwachs.** *La représentation de l'âme chez les Grecs : Le double corporel et le double spirituel.* [The problem is: Is Plato's concept of a rational soul a development of the primitive concept of a "shadow" soul, as Henri Weil thought, or is there no connexion between the two, as Erwin Rhode thought? The author comes to the conclusion that Plato's concept of a spiritual and immortal soul is an original achievement on Plato's part which has left a profound impress on subsequent European thought.] *Études Critiques.* **F. Duprat.** *Les rapports de la connaissance et de l'action d'après John Dewey.* [First instalment of a critical review of Dewey's philosophy, based chiefly on his *Experience and Nature* and *The Quest for Certainty*. The present instalment is purely expository, the criticism having still to follow.] Index of Authors. Index of Articles. Index of Supplements. Reviews of books, French and Foreign. Analyses of Periodicals. Report on the 7th International Congress of Philosophy. Obituary: Eugenio Rignano.

REVUE NÉO-SCOLASTIQUE DE PHILOSOPHIE. xxxii^e Année. Deuxième série. No. 28. Novembre, 1930. **M. de Wulf.** *L'âge de la métaphysique.* (This and the following article are communications presented at the International Congress of Philosophy at Oxford in September last.) [Metaphysics dominates the philosophical thought of the thirteenth century, as epistemology or psychology has dominated that of some later periods.

The metaphysics of all the thinkers of the century agree in fundamental characteristics. All are objectivist, individualistic, pluralistic. The two great problems for them all are that of the internal composition of the individual (essence-existence, substance-accident, form-matter), and that of the hierarchy of orders of individuals. The "age of metaphysic" only ended in the sixteenth century with the rise of psychology to the predominant position.] **L. Noël.** *L'intelligible*. [All philosophers are in accord that there is something in human thought which goes beyond the data of perception. The question is whether this something is a new object, independent of perceptual data, or merely the result of a process of elaboration of a content wholly supplied by sense. The scholastic answer is that what thought apprehends is the *quiddity*, and that it reaches this by a process of abstraction performed on the data of sense. This is, so far, in accord with Kant's denial to man of an "intuitive understanding". Scholasticism has the advantage over Kant that it makes it the function of understanding to "illuminate" the *sense-data*, not to insert *connexions* between them. "In the atmosphere of intellect, the sensible data acquire a value they would not have in a merely sensuous consciousness." In virtue of the continuity of understanding with sense, understanding, on the scholastic view, is not confined to appearances, but can reach the real structure of things.] **F. van Steenberghe.** *Siger de Brabant d'après ses œuvres inédites*. [The discovery in 1923 of a number of previously unknown works of Siger makes it necessary to reconsider his place in the history of mediaeval philosophy, and even to raise the question whether the "Averroism" of Paris was as dependent on Averroes as has usually been thought. The whole history of this Latin Averroism, from its rise about A.D. 1250 until its first condemnation in 1270, is still exceedingly obscure, and must remain so until we are in possession of further documents. The newly-discovered Aristotelian commentaries of Siger are already in the hands of competent editors, but it may be years before their publication is complete.] **L. Noël.** *Le nouveau programme légal belge et la philosophie*. [Critical observations on the position of philosophical studies under the educational law of May, 1929.] **R. Kremer.** *Le VII^e Congrès international de philosophie*. [Brief statement of the general character of the proceedings.] **R. Kremer.** *Bulletin d'épistémologie*. Programme of courses in the Institut supérieur de philosophie, 1930-31. Book Reviews, etc.

- ERKENNTNIS.** Band i., Heft 1 (zugleich *Annalen der Philosophie*, Band ix., Heft 1). This new periodical is a successor, under the editorship of Rudolf Carnap and Hans Reichenbach, of the now discontinued *Annalen der Philosophie*. As did the latter, it regards philosophy as a body of positive and largely empirical knowledge. Its aim is consequently to ensure, and give primary place to, the clarification of the fundamental ideas, principles and results of the sciences. Problems are to be discussed on their own merits, without the restriction of any preconceived system. The title "Erkenntnis" is intended to emphasise the above-mentioned positive conception of philosophy. The collaborators will include specialists from the chief scientific fields. The periodical is the official organ of the Gesellschaft für empirische Philosophie (Berlin) and of the Verein Ernst Mach (Vienna). The publisher is Meiner of Leipzig. About six numbers are to appear yearly. Subscription R.M. 20; free to members of the above societies. **Moritz Schlick.** *Die Wende der Philosophie*. [Philosophy as a body of certain knowledge will be realised only when it gives up the

claim to a special sphere of problems. It is rightly only a technique. This technique is for the clarification of propositions; the verification of them belongs to science.] **Rudolf Carnap.** *Die alte und die neue Logik.* [Philosophy as the logical analysis of the categories and principles of the sciences is now possible through the development of a more adequate logical technique. By the use of quasi-mathematical symbols and operations, logistic guarantees rigour by excluding the possibility of the unnoticed presuppositions which are almost inevitable when words are used; by the provision of symbols for relations it covers a vast amount of scientific thinking which the older thinking did not cover; by its theory of types it resolves notorious mathematical antinomies; and by its doctrine that all inference is "tautologous" (that is, that from any fact no other can be inferred) it rules out all metaphysics of the transcendent kind (all synthetic propositions being empirical). A bibliography of mathematical logic is appended.] **Walter Dubislav.** *Ueber den sogenannten Gegenstand der Mathematik.* [Critical discussion of four types of theory concerning the nature of mathematics: (1) the Platonic, Kantian and intuitional; (2) the empirical, e.g., Mill's; (3) the conventionalist, e.g. Poincaré's; (4) formalistic, as in mathematical logic. The last is preferred.] **Hans Reichenbach.** *Die philosophische Bedeutung der modernen Physik.* [Instead of taking the categories of Nature from natural science, philosophy continues to use those transmitted by tradition, and even treats them as necessities of thought. When judged by these the newer physics is condemned, philosophers thereby endorsing the plain man's sense of the enormous disparity between the world of physics and the world of everyday life. The author makes a brilliant attempt to confute this view. He denies that the quantum and relativity theories give us a world that cannot be represented concretely in imagination, and insists that they are applications in a wider field of the same principles of method that guide all other inquiries. The classical physics is ruled by conceptions derived from our daily experience of things of moderate size; the new physics has found that such conceptions do not express the nature of the very small and the very large.]

IX.—NOTES.

NOTE ON IDENTITY OF STRUCTURE.

IN what sense is an account identical in structure with what it is an account of? In the sense in which a map is identical in structure with what it maps. A map is identical in structure with what it maps and a reflexion in a mirror with the scene the mirror mirrors. Miss Stebbing defines what is meant by saying that a map has the same structure as that of which it is a map. She says "we correlate each town with a dot on the map. The spatial relations on the map correspond to the distance and direction of the towns. Call the first relation R and the second S . Then there is a one-one relation P whose domain¹ is the field of R and whose converse domain is the field of S , such that if xRy , then the correlate of x has S to the correlate of y . In such a case R is said to be similar to S ."² Mr. Russell defines the similarity of relations in the same way.³ The language of Mr. Russell and Miss Stebbing suggests that they would define " S , a system, is identical in structure with S' , another system" by "The generating relation⁴ of S is similar to the generating relation of S' ".

But we shall want a wider use of identity of structure than this. In the first place this definition would suggest that no two systems can have the same structure unless the generating relation of the one is different from the generating relation of the other. But the series of my ancestors exhibits the same structure as the series of yours while the generating relations are the same. We should have to add then to the definition of similarity above that R may be S .

In the second place the definition would suggest that no two systems can have the same structure unless they are both Plain. When there is a system there is a set of relationships each of which may be said to be part of the system. I call a system Plain when there is only one relation which is the component in each relationship which is a part of that system. Thus the series of the Kings of England is a plain system—the component relation being *succession*. And the series of your ancestors is a plain system. But your family is not—your mother is your father's wife but you are not and yet the relation *wife of* is a component of the system. Not every system, then, is plain. And how are we to define identity of structure

¹ Domain of R = Things which have R to something. Df.
Converse domain of R = Things to which something has R . Df.

Field of R = Domain together with converse domain of R .
Df.

² *A Modern Introduction to Logic*, p. 205.

³ *Introduction to Mathematical Philosophy*, p. 53.

⁴ The generating relation of a system is the relation which forms its elements into a system.

for systems which are not plain ?¹ Although sometimes the components of the parts of a system are not identical they always are either identical or species of the same relation. Thus we have geometrical systems, economic systems, social systems, family systems. The components of the relationships in a family are not identical but they are all some determinate of copulation and sex (roughly). Consider a map and a country. The components of the map are all determinates of *being some number of inches above or below, to the right or the left of*. The components of the country are all determinates of *being some number of inches north, south, east or west of*. But these determinable relations are not the component relations for the systems, and the identity of structure does not lie in the fact that if a dot is some number of inches above or below, to the right or the left of, another dot then its correlate, the town it signifies, is some number of inches to the north or the south or the east or the west of the correlate of the second dot. That will be true if there is identity of structure, but when we claim identity of structure we claim more than that. Although we do not claim that there is *one* relation which generates the first system and another *one* which generates the second, such that the one occurs in the first system whenever the other occurs in the second, we do claim that that there is a set of relations, the determinates of *above or below* etc., which are components in the first system and another set of relations, the determinates of *north or south*, etc., which are components in the second system such that for each member of the one set there is just one member of the other set which occurs in the second system whenever that member of the one set occurs in the first system and *vice versa*. Thus *above* corresponds in this way to *north of* and to *the right of* to *east of*.

We may define identity of structure between two systems, S and S', which are not plain as follows. Let R and R' be the determinables of the components of S and S' respectively. Let P be a one-one relation whose domain is the constituents of S and whose converse domain is the constituents of S'. Let each determinate, ρ , of R be such that there is just one determinate, ρ' , of R' such that if two constituents of S are related by ρ then their correlates (with respect to P) in S' are related by ρ' and *vice versa*.

In the third place—about this one-one relation P. What P is is plain enough in the case of the map and the country. It is the relation *used as a symbol for*; this relation relates one-to-one the dots which are the constituents of the map to the towns which are the constituents of the country.² And what P is is plain enough if a mirror mirrors a scene. It is the relation of reflecting. But suppose the mirror is now turned round while the image in it by some freak remains. Or suppose that quite by chance the arrangement of the stars in a given plane reflects the choral capacity of the angels in a given choir. There will still be identity of structure. Can we drop P from our definition of identity of structure? I think we can. It is true that if two systems are identical in structure there will always be a one-one relation between the constituents of the one and the constituents of the other—a relation defined in terms of the generating relations of each system. But there need be no independent relation. On the other hand the definition above of identity of structure between two not plain systems, with the P clauses dropped will not do. It would then run "Let each deter-

¹ If two systems are identical in structure either both are plain or both not.

² The map of course is simplified for convenience to a lot of dots in space. And the country to a lot of towns in space.

minate, ρ , of R be such that there is just one determinate ρ' of R' such that if two constituents of S are related by ρ then two constituents of S' are related by ρ' . For this would be true in the following case which is yet not one of identity of structure. Suppose we have these relationships as parts of a system S ,

$$\begin{aligned}x_1\rho_1x_2 \\x_1\rho_1x_3 \\x_4\rho_2x_5 \\x_6\rho_3x_4 \\x_7\rho_3x_8\end{aligned}$$

And these relationships as parts of a system S' ,

$$\begin{aligned}y_1\rho_1'y_2 \\y_2\rho_1'y_3 \\y_4\rho_2'y_5 \\y_6\rho_3'y_4 \\y_7\rho_3'y_8\end{aligned}$$

Although for every occurrence of ρ_1 there is an occurrence of ρ_1' and for every occurrence of ρ_2 there is an occurrence of ρ_2' and for every occurrence of ρ_3 there is an occurrence of ρ_3' , there is not identity of structure. For in S one constituent, viz., x_1 , has ρ_1 to each of two other constituents of S ; while in S' no constituent has ρ_1' to each of two other constituents of S' . It is as if in a country there were two towns north of another, say London, but not on the map two dots above another dot. S and S' therefore are not identical in structure. We require not merely that for every occurrence of ρ_1 there is an occurrence of ρ_1' but also that if any two occurrences of ρ_1 contain a common referent then there are two occurrences of ρ_1' which contain a common referent, and if any two occurrences of ρ_1 contain a common relatum then there are two occurrences of ρ_1' which contain a common relatum.¹

" S has the same structure as S' " means "Either S and S' are plain—and then, where R is the component in the relationships of S and R' in those of S' , for every occurrence of R in S there is just one occurrence of R' in S' , and if in any two occurrences of R in S the referent (or relatum) is the same then there are two occurrences of R' in S' in which the referent (or relatum) is the same. Or they are not plain—and then, where R is the relation determinates of which are components of S and R' the relation determinates of which are components of S' , each determinate, ρ , of R is such that there is a determinate, ρ' , of R' , such that for every occurrence of ρ in S there is an occurrence of ρ' in S' , and if in any two occurrences of ρ in S the referent (or relatum) is the same then there are two occurrences of ρ' in S' in which the referent (or relatum) is the same."

J. WISDOM.

¹ In xRy , x is the referent and y the relatum.

LALANDE, HIS TELESCOPE, AND GOD—A CORRECTION.

TO THE EDITOR OF "MIND".

DEAR SIR,

As one who has himself abstracted Philosophical Periodicals for MIND, I know from personal experience how easy it is to make a slip, and how unnecessary, as a rule, to trouble the pages of MIND with a correction when such a slip has occurred. If, nonetheless, I ask permission to point out an error which has occurred in another collaborator's abstract, it is not only in order to defend the author against the undeserved imputation of having confused two famous French astronomers, but also because the point involved is of intrinsic importance as illustrating the attention paid by philosophers at the beginning of the last century to contemporary science.

In MIND, N.S., No. 151 (July, 1929), page 400, in an abstract of Prof. H. G. Townsend's article on "A Persistent Motive for Social Organisation", published in the *Journal of Philosophy*, vol. xxvi, No. 6 (March, 1929), there occurs the following sentence: "Professor Lalande may be shocked to hear that 'he had swept the heavens with his telescope and found no God', but he may proffer the excuse that, unlike Laplace, he was not an expert in astronomy".

By italicising the names Lalande and Laplace, the writer of the abstract indicates that he takes the author to have confused Laplace, the 18th century astronomer, with Lalande, the contemporary French philosopher. But, actually, the writer of the abstract would seem to have confused two different Lalandes, viz., A. Lalande, the contemporary philosopher, and Joseph Jérôme Lefrançois de Lalande, 1732-1807, who was a very distinguished astronomer in his day, as may be verified by a reference to the article on him in the *Encyclopædia Britannica*, vol. xvi. page 95.

The story of this Lalande's saying about sweeping the heavens with his telescope and finding no God, is used by Hegel in his *Logic* in the *Encyclopædia of Philosophical Sciences* (see Wallace's translation, chap. iv., p. 123), in commending Jacobi's treatment of the categories of the exact sciences as in their very nature "finite". Hegel's words are: "It is certainly not on the finite ground occupied by these sciences that we can expect to meet the in-dwelling presence of the infinite. Lalande was right when he said he had swept the whole heavens with his glass and seen no God".

Wallace, in his Notes and Illustrations to his translation (see Second Edition, p. 407), traces Hegel's acquaintance with Lalande's sayings to a quotation of it by Jacobi, in his *Werke*, vol. ii., page 55, from Fries, *Populære Vorlesungen ueber Sternkunde*, 1813. Wallace adds: "What Lalande has actually written in the preface to his work on astronomy is that the science as he understands it has no relation to natural theology—in other words, that he is not writing a Bridgewater treatise". The work referred to by Wallace is, presumably, the *Traité d'astronomie*, of which the third edition in three volumes appeared in 1792. But at the moment of writing I cannot verify this.

If the writer of the abstract had recognised the source of Prof. Townsend's use of the Lalande story in Hegel's *Logic*, he would probably have recognised also that the argument of Prof. Townsend's paper was not inspired, as he takes it to be, by General Smut's Holism. On the contrary,

it is a fresh and distinctive contribution to a type of social theory which, if we must classify and label, has closest affinities with Hegel and his English followers, like Bosanquet.

I remain, dear Mr. Editor,
Yours faithfully,
R. F. ALFRED HOERNLÉ.

MIND ASSOCIATION: ANNUAL MEETING AND JOINT
SESSION WITH THE ARISTOTELIAN SOCIETY.

THE Annual Meeting of the Mind Association will be held this year at Trinity College, Cambridge, on Friday, 3rd July, at 5 p.m.

It will be followed by a Joint Session with the Aristotelian Society, for which the following arrangements have been made:—

FRIDAY, 3RD JULY.

8 p.m. Chairman: Prof. Edgell.
Address by Prof. Sorley.

SATURDAY, 4TH JULY.

10 a.m. Chairman: Prof. Moore. Symposium: "Indeterminacy and Indeterminism". Dr. C. D. Broad, Sir Arthur Eddington, Mr. R. B. Braithwaite.

8 p.m. Chairman: Dr. C. D. Broad. Symposium: "The Coherence Theory of Goodness". Prof. H. J. Paton, The Provost of Oriel, Prof. J. L. Stocks.

SUNDAY, 5TH JULY.

10 a.m. Chairman: The Provost of Oriel. Symposium: "The Nature and Validity of Formal Logic". Dr. A. C. Ewing, Dr. F. C. S. Schiller, Mr. C. A. Mace, Mr. A. R. Knight.

8 p.m. Chairman: Prof. Sorley. Symposium: "Actuality and Value". Prof. Laird, Prof. G. Dawes Hicks, Prof. de Burgh.

Rooms will be provided for men in Trinity College, and for women just outside the College. For men all meals will be provided in the College; for women breakfast will be provided at their lodgings, and all other meals in the College. The *inclusive* charge for board and lodging from Friday afternoon till Monday morning will be, for men, £2. 5s.; for women, 39s. For *part-time accommodation* the charges will be: Room and breakfast, for men 8s. 6d., for women 6s. 6d.; Lunch, 3s.; Tea, 1s.; Dinner, 3s. 9d.

There will be a charge of 10s. as a Registration Fee for Membership of the Joint Session. The papers will be published by the Aristotelian Society as a Supplementary Volume, which will be sent free of charge to all who have paid the Registration Fee. It is hoped that it will be ready in time to be distributed before the opening of the Joint Session.

In order to facilitate the making of arrangements, it is requested that applications for membership and accommodation should be made *as early as possible*. Payment of the Registration Fee and of the charge for accommodation should accompany applications. Applications and payments should be made to:—

Prof. G. E. Moore,
86 Chesterton Road,
Cambridge.

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